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THE

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AND

DISEASES OF WOMEN AND CHILDREN

EDITED BY

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VOL. XXXII.

JULY, 1895.

No. 1.

ORIGINAL COMMUNICATIONS.

ABDOMINAL SECTION FOR PUERPERAL SEPTICEMIA.¹

BY

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DURING February, 1887, there came under my care a patient presenting the following history: The second or third day after confinement she complained of a chill, and was found to have a tender and tympanitic abdomen, together with a quick pulse and high temperature. Under general treatment these symptoms abated somewhat and she disappeared from observation for several weeks. One month from the date of her confinement she again demanded aid. At this time she was so emaciated as to be hardly recognizable. Her temperature was over 102°, her pulse over 130; she was having continued chills and creeps, hectic, night-sweats, and sleepless nights; her abdomen was swollen, tympanitic, and intensely painful, her bowels loose and fetid; micturition and defecation both painful—she was evidently fast approaching death. An examination of the soft

¹ Read before the American Gynecological Society, May 27th, 1895.

parts showed no signs of a recent laceration ; the uterus was sub-involuted, and on the left side there was a large, boggy mass, firmly adherent, tortuous, and extremely tender. An abdominal section followed, when the left Fallopian tube and ovary were found distended with pus and were removed. The patient made a speedy and thorough recovery. To the best of my knowledge this case was the first one upon whom an abdominal section was deliberately and knowingly performed for puerperal septicemia. It was reported in full to the Philadelphia County Medical Society, June 22d, 1887, and the report published in the Transactions of the Society.

The case is an excellent representative of one class of patients suffering from puerperal septicemia upon whom an abdominal section is not only advisable but essential, if the lives of a certain proportion and the future health of the balance are to be taken into consideration. The practice of removing the uterine appendages which contain pus accumulations at this period of a woman's life has become so thoroughly established since the report of the above case as to need but casual mention, whether that pus accumulation existed prior to the pregnancy or occurred subsequent to this condition. Curettage and gauze packing of the uterine cavity, catheterization of the Fallopian tubes, vaginal or rectal incision and drainage together with all other so-called conservative methods may well be left in the hands of the timid. Where there is pus it *must* be evacuated, and it is much safer, in the largest proportion of cases, to evacuate it at a point of election than to allow it to empty itself, with all the chances of immediate danger to life as well as the remote consequences. There is one other point of so-called conservatism the folly of which it is well to emphasize—the “waiting policy,” on the supposition that the patient can be “built up and prepared for the operation.” The patient is in her present threatening condition of health on account of the absorption of septic materials into her blood, in many cases she is exhausted and her life in danger, and a continued absorption of the septic matter from the accumulations in the pelvis may mean the difference between life and death. The dangers of further absorption far outbalance the good that may be obtained from medication, and delay for this reason is not justifiable.

So much for true pus cases ; but there is another and larger class in which there is infection of the Fallopian tube the

ovary and possibly the peritoneum without any formation of pus but with more or less decided tubal and ovarian disease with peritoneal and connective-tissue exudate, easily demonstrable by a local examination. Clinically such cases are met with every day in varying shades of intensity, and the question of treatment must be settled by two conditions: first, the general condition of the patient; second, the ability of the physician to determine whether or not suppuration has occurred. In the diagnostic ability of the physician, then, rests the whole responsibility. It is not possible to be dogmatic on this subject, for the reason that there are so many exceptions which must be determined in the case of the individual patient by her condition at the time. In general, however, it is safe to say that in an attack of puerperal salpingitis and pelvic peritonitis dependent thereupon, no pus being present, an immediate operation is not demanded. Further, in those cases in which it is doubtful whether or not pus be present, the general condition of the patient permitting, delay is preferable, the patient being carefully watched and a secondary operation, if necessary, performed later.

Infection passing from the uterine cavity through the Fallopian tubes into the peritoneal cavity and terminating in a septic or suppurating peritonitis may be dealt with according to whether or not the inflammation remains localized or becomes general. Most frequently Nature succeeds in throwing out lymph in sufficient quantities to sooner or later isolate the infection, the resulting abscess being the larger in exact ratio to the virulence of the poison and the rapidity of its extension. The treatment of these intraperitoneal abscesses would resolve itself into a very simple matter, could the physician be certain that no pus was contained in the Fallopian tubes or the ovaries. The difficulty here lies with the diagnosis, as in a large number of these cases no such assurance can be obtained. One line of treatment would be the adoption of abdominal section and evacuation of the abscess without breaking up more adhesions than just sufficient to allow of the introduction of a single finger into the abscess cavity for the sake of exploration. If it be then found that there is no accumulated pus in either the Fallopian tubes or the ovaries a drainage tube should be placed in the sac and the abdominal incision closed. This plan of treatment is feasible and has often been safely carried into effect. It is only necessary, in

order to avoid soiling the general peritoneal cavity as the pus is being evacuated that the proposed point of opening into the abscess sac be surrounded by sponges carefully packed in all directions. The operation is no more severe and is fraught with no more danger than would be the opening of the abscess through the vagina and has the additional advantage that if tubal and ovarian abscesses are found they are readily detected and their removal can at once and intelligently be proceeded with.

Should, on the other hand, the peritonitis have become a general one, the patient, as far as we can judge from past experience, will inevitably perish. To my knowledge there has never been reported an undoubted case of general purulent peritonitis, from any cause whatever, in which an abdominal section or any other line of treatment has succeeded in saving the patient's life. As exact and accurate intraperitoneal diagnosis is more of a desideratum than a possibility it were well in all cases where the patient does not seem beyond all chances of recovery to give her the benefit of the doubt in the diagnosis (however slight that may be) and operate. Not infrequently it may be found that a mistake has been made and what was looked upon as a general peritonitis is more or less localized; and in just so far as the whole cavity is not involved will the chances of recovery increase.

Turning our attention now to that form of puerperal septicemia known as puerperal cellulitis—that variety in which the infection has found its way from the uterine cavity by way of the lymph channels and blood-vessel walls into the surrounding connective tissue—we are confronted by a much more difficult problem and one which will no doubt produce a wider difference of opinion. The first difficulty which presents itself is the old one of diagnosis. Is the cellulitis uncomplicated by a corresponding degree of peritonitis and salpingitis? Has suppuration taken place in the connective tissue or is the case simply one of exudation without suppuration? Are there pus tubes, ovarian abscesses, or intraperitoneal pelvic abscess as the primary cause of the cellulitis and accompanying it or not? These are questions the answers to which will largely decide the treatment. It may at once be stated that the large number of cases in which suppuration has not taken place may be excluded from the category of those amenable to treatment by abdominal section.

There still remains, however, for our serious consideration the suppurative group. With tubes and ovaries distended with pus we have already decided in favor of abdominal section and removal of the offending organs. If in addition the broad ligaments and pelvic floor be infiltrated and contain pus why stop short of removing as much of the disease as possible and draining the balance? It must be granted that the entire area of infected and suppurating connective tissue cannot be removed, but at the same time those who have performed total hysterectomy in this condition will recall the fact that a large proportion of the infiltrated area has been reached and that the remaining portion is in every direction opened up and left in a most favorable condition for drainage. Is there any method of incision, either single or multiple, which will so thoroughly lay open and afford such thorough drainage of the suppurating tissues as the removal of the entire uterus? Is not the additional fact that the diseased and possibly distended tubes and ovaries, as well as the diseased and possibly suppurating uterine walls, are eliminated as future factors of trouble a powerful argument in favor of this procedure? It is true that objections will be offered, and in fact have been advanced that where the infection has once passed into the connecting tissue the disease has ceased to be a local one but has become general and is beyond reach. Is it not true, however, that like objections have been offered by like men to every advance that has been made in medicine or surgery from the beginning of the world? And are we to stop in our investigations because of the timid and the irrational? Has, then, the disease become a general one, as is contended by these gentlemen? By no means, at least in its reasonably early stages. The disease is essentially a local one until such time as the blood is so broken down by the absorption of septic matter as to longer preclude the possibility of life. When has that point been reached? is the question which must be answered and it is one which it is by no means easy to determine. If the physician decide that, provided there be no more absorption of sepsis, the patient's chances for life are good then it would seem that instead of wasting invaluable time in "building up" the woman or "waiting" it becomes our duty to see that there be no more absorption; or if perchance absorption cannot be stopped altogether, that at least it be minimized. What way of accomplishing this is there comparable to the removal of the

bulk if not all the diseased structures—total hysterectomy? As a rule if anything is to be accomplished in this line it must be within the first week or two as experience has shown that either death or beginning convalescence is usually an accomplished fact by this time. Each individual case must however govern itself and the propriety of the procedure can only be determined at the bedside.

Equally if not more difficult cases to deal with are those in which no disease of the pelvic peritoneum, Fallopian tubes, ovaries, or connective tissue is demonstrable by an examination. The absorption of septic material is taking place from the cavity of the uterus, as demonstrated by the absence of all other cause and the presence of purulent and fetid discharges. The so-called diphtheritic and gangrenous cases are of this variety. Intrauterine douching, curettage, the free use of pure carbolic acid to the interior of the uterus, and drainage by gauze packing or otherwise having failed to bring about a diminution in the high temperature and pulse, or if after a few hours of diminution these begin to creep higher and higher, especially if the discharges continue, what remains short of hysterectomy to put a stop to the disorganization of the blood? The hysterectomy in this case need not of necessity be total, amputation below the internal os being all-sufficient.

In attempting to carry out these principles two facts must stand forth with great prominence. If any great amount of good is to be accomplished the decision must be arrived at and the hysterectomy performed early—the earlier the better the success.

In attempting to arrive at an early decision there will be the greater danger of operating upon patients who would otherwise have recovered without this interference. The greatest care and discrimination will consequently be necessary in deciding for or against the radical procedure and the more skilled the physician in diagnosis the fewer mistakes he will make *pro* or *con*.

After all has been said and done the distinction between the different varieties is clinically not easy and, as a matter of fact, the cases are generally of a mixed nature.

It must be admitted that the field for hysterectomy in puerperal cases is not a large one, but that it exists to a certain extent is patent. The success following this procedure has so far

been encouraging in spite of the fact that the number of times it has in the past been resorted to are not many. The cases presented with this paper most probably do not represent the total number performed and equally true is it that probably those not recorded have all died.

Puerperal septicemia following rupture, bruising, or twisting of the pedicle of neoplasms complicating pregnancy and delivery need only be mentioned to demonstrate the necessity of abdominal section and removal of the neoplasm for its relief. Rupture of the uterus can only be included in this same category in spite of the fact that some few cases have recovered without operation.

The following list of hysterectomies during the puerperal state does not include those in which a distinctly circumscribed collection of pus existed in a sac. It will be seen that the operations have not been many, but that sufficient success has been obtained to warrant further and more general trial. Nineteen cases have been reported by American operators with seven successes and although some of the successful ones might have recovered without the operation still a careful study of the reports indicates that quite the reverse is probable.

1. Baldy: Hysterectomy one week following miscarriage; uterus soft and very friable, tubes distended with pus, ovaries large and soft, abscess at junction of tube with pelvic wall; died at end of two weeks from pneumonia.

2. Baldy: Hysterectomy ten days after a miscarriage; had been curetted five days before operation; Fallopian tubes and ovaries healthy; broad ligaments distended with infiltrates and pus; uterine walls contained numerous foci of pus; no intraperitoneal adhesions; died.

3. E. P. Davis: Hysterectomy two weeks after confinement; tubes and ovaries healthy; numerous foci of pus in uterine walls; recovery.

4. Laphorn Smith: Hysterectomy fifth day after confinement; no disease of appendages; pus in uterine sinuses; recovery.

5. Peterson: Curettage three days after abortion; hysterectomy within the week; recovery.

6. Ashton: Hysterectomy one month after confinement; abscesses of uterine walls, also of tubes and ovaries; died.

7. Pryor: Curettage fifteen days after confinement; hysterectomy

tomy at once; uterine walls disintegrated and gangrenous; appendages healthy; recovery.

8. Hirst: Hysterectomy one month after delivery; uterine walls contained abscess; both tubes and one ovary distended with pus; broad ligaments infiltrated but not suppurating; recovery.

9. Hirst: Hysterectomy four weeks after confinement; suppurative metritis; large broad-ligament abscess, pus tube, and ovarian abscess; recovery.

10. Hirst: Hysterectomy two weeks after confinement; diphtheritic endometritis; no involvement beyond womb; died.

11, 12, 13. Hirst: All followed abortions; all had suppurative metritis; all died.

14. Kelly: Hysterectomy five days after confinement; puerperal metritis; recovery.

15. Montgomery: Hysterectomy within a week after confinement; pus in uterine sinuses; died.

Boldt has performed the operation four times with four deaths.

THE UNIVERSAL APPLICATION OF THE PRINCIPLES OF ASEPTIC TO PRIVATE OBSTETRIC PRACTICE.¹

BY

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(With two charts.)

NINE years ago I introduced the same subject before this Society in a paper entitled "The Value of the Antiseptic System in Private Obstetrical Practice: Conclusions based on a Study of the Puerperal Temperature."² Even at that time the subject had not attracted much attention in this country. The brilliant results obtained by the introduction of the antiseptic system in the maternity hospitals of Europe had been published and Garrigues had commenced his pioneer work in New York.

At the present time I believe I can safely assert that no

¹ President's address, delivered before the Washington Obstetrical and Gynecological Society, October 5th, 1894.

² AMERICAN JOURNAL OF OBSTETRICS, New York, vol. xix., p. 337.

maternity hospital is conducted without a more or less rigid conformity to antiseptic rules, and the more rigidly they are carried out the better the showing of the institution. The mortality in these public wards is reduced to a fraction of one per cent, and although the patients are received from the lower classes of society, often in protracted labor and after unskilful treatment, the death rate compares favorably with that of private practice where all the conditions are favorable for success.

But my purpose now is to consider the question only from the standpoint of the private practitioner. The time is past when, as in my former paper, any study is necessary of its effect upon the puerperal morbidity and mortality. Investigation of the subject in England has demonstrated that the mortality in that kingdom from puerperal sepsis has not materially fallen, and that the "rank and file" of the profession have not availed themselves of the means to protect their patients from the most dangerous of all child-bearing diseases. In this country I believe the condition is no better.

In every community there are conscientious men, fully abreast of the times, who will be found strictly conforming to the rules of this practice. The more recent graduates of medicine are well informed on the subject and carry to their work a full appreciation of its value. But the vast bulk of obstetric practice is still controlled by a dangerous element. By a dangerous element I mean the good old family physician, the man who has shared the joys and sorrows of his *clientèle* for forty years. He has an excellent reputation and large practice, the demands of which force him along the same road every day until it is worn full of ruts. The old paths are so natural he is averse to leaving them and striking out to follow new ones, which he pooh-poohs and calls "fads."

His routine duties bring him in contact with infectious diseases; he opens or dresses an abscess; during office hours he makes vaginal examinations, and all the time perhaps he has a case of labor under observation. Repeated examinations are made without any antiseptic precautions, the labor terminates successfully, and happiness and congratulations are the order of the day. In three or four days and how the scene is changed! First there is milk fever; then it is malarial; peritonitis occurs as a serious complication, and conditions go from bad to worse. Joy and happiness give way to anxiety, this to despair, and

finally the end comes. Under no other circumstances does death cast such widespread gloom over relatives and friends.

And what does the good old family physician say? "Very sad! Most unfortunate! Don't see how in the world it happened! She got along so nicely, too!" Oh! that such men had the conscience of a Michaelis. A brilliant obstetrician he was, and his investigations on deformities of the pelvis will long survive him; but, above all, he should be honored and emulated for his good conscience. The truth of the doctrine that septic inoculation produced puerperal fever was rudely thrust upon him by the death of a relative whom he had attended in confinement. Believing he was negligent in not using the proper precautions to protect the life that had been placed in his care, his conscience so condemned him he threw himself in front of a locomotive and was crushed to death.

If this occurred before Semmelweiss' theory had been generally accepted by the profession at large, what can be said to-day in extenuation of the continued negligence of so many physicians in active obstetrical practice? The facts are now plainly presented, so that "any one who runs may read," and nothing but mental rust and a torpid conscience blinds them. When temporarily aroused from their ground-hog lethargy they see the shadow of death, but only to relapse into their former state of inaction.

I do not wish to be regarded as criticising my hypothetical brother too severely, but I cannot shut my eyes to such culpable negligence. The vital importance of the subject is my excuse for speaking so harshly of men who are pursuing our noble profession.

As members of this Society we have had special advantages and kept in the current of modern thought and practice. Having cast the beams from our own eyes, we should unite in efforts to pull the motes from the eyes of our brothers. Recognizing these evils, the responsibility to us is as great to correct them as it is with those who need the correction. It is useless to say that, however great the need for reform elsewhere, there is no field for it here. This excuse for inaction is indulged in by each community, which wraps itself in false security and points out the shortcomings of others. As "charity begins at home," it is proper we should examine our own position.

The profession of Washington, as a whole, is as enlightened

as that of any city of its size in the United States. After careful observation for the last ten years I have recognized that it is composed of the following classes, which, no doubt, exist to an equal extent in other communities:

1. Men who are thoroughly convinced of the truth of the doctrine of Semmelweiss and earnestly and conscientiously carry out aseptic principles.

2. Men who acknowledge the facts, but are only half-way convinced. They conform to the practice, but in a careless manner and more to protect themselves from unfavorable criticism.

3. Men who neither believe nor doubt the doctrine. They are indifferent and make no effort to ascertain the truth. Being in doubt of the value of the method, they do not care to trouble themselves with its details.

4. Men who openly disregard it as one of the "fads" of the day. They take no antiseptic precautions whatever, because they consider them unnecessary. Their universal argument is, they have been practising so many years and never lost a woman from puerperal fever. The men composing the first class are proportionately increasing. While working in this good cause, by precept and example let them win over converts from the ranks of the other three classes. They may, as a little leaven hidden in a bushel of meal, finally leaven the whole.

Certainly my experience with the non-conformists is not different from yours.

You as well as I have seen men who considered their duty done when they had dissolved a tablet of bichloride in a basin of warm water. As extra precautions they may occasionally flip their fingers in the solution. And, likewise, you have been called in consultation to see cases that have been in labor one or two days and the antiseptic to be had is found in the nearest drug store. The hand had been introduced into the uterus to remove retained placenta; efforts had been made to extract by forceps, version, and craniotomy. These are some of the cases you have seen where no antiseptic precautions whatever had been employed. Your best effort may now be defeated because inoculation has already taken place.

Men comprising the fourth class are largely drawn from those practising in the country and thinly-settled districts. They never see puerperal fever, because they call it by another name

There can be no question of its existence to an equal or greater degree proportionately to city practice. Women living in the country are stronger and in better condition than the city-reared, and are less liable to suffer contact with pathogenic organisms, but these advantages are more than counterbalanced by the want of antiseptic precaution on the part of the medical attendant.

Speaking from my own experience, I can testify to the frequent occasions I have been called outside of the city, into the neighboring country sections, to see serious and fatal cases of childbed fever; and all who practise gynecological work know how many cases are sent from the country with a history of puerperal infection as the beginning of ill health. Within the past few days two cases have come under my observation bearing on this point.

About seven years ago I was visiting a popular summer resort in the mountains, and in response to my question the resident physician, who is a man of more than ordinary ability, assured me that such a thing as sepsis in child-bearing women was unknown in that salubrious climate. At that time he happened to have in his charge a lady who had miscarried. During his temporary absence I was called hurriedly to see her, and found that she was suffering from a high fever which had been preceded by a severe rigor and fetid vaginal discharge. Later I administered an anesthetic for him while he removed some decomposing pieces of placental tissue. It is strange that the only case that ever happened there should have occurred so soon after this conversation and while I was present. I do not mean to say that this physician, or that all who practise in country districts, are necessarily of the dangerous element; many of these are fully abreast of the times and need not fear an investigation of their work.

Puerperal fever is eminently a preventable disease, and fortunately the channel of infection, in the great preponderance of cases, is by contact of the poison with the birth canal during labor. Labor conducted with the same aseptic care that a surgical operation is performed protects the wounds made during childbirth equally as well as those made by the knife. But occasionally the best efforts will fail in one case as in the other and infection creep in by unsuspected paths.

With two exceptions, all the cases of puerperal fever that have occurred in my practice since I have adopted these precau-

tions have been easily controlled by local treatment. In one of those the source of infection was unmistakably traced to the nurse. She came directly from a severe case of puerperal fever, where her duties required her to give vaginal douches, and, what is reprehensible under any circumstances, she made digital examinations of my patient. A second nurse, who had assisted her in the care of the first patient, took charge of a parturient, and she, too, was infected.

In the other case my experience was more unfortunate. A primipara at the end of the sixth month of gestation was placed in my care by a physician who had exercised intelligent supervision of the patient. She was in excellent condition and continued so during the rest of her pregnancy. The waters escaped three days before labor set in. Vertex presented in first position. Her confinement was exceptionally easy and was normal in every respect. There was no laceration. The uterus retracted promptly and the placenta was expelled by expression. At the end of forty-eight hours she was attacked by violent abdominal pain, tympanites, and fever. This was the beginning of a severe attack of diphtheritic metritis and endocolpitis which ended fatally on the seventh day in spite of a vigorous antiseptic treatment. The greatest care had been exercised to prevent infection. The hands had been thoroughly cleansed with the nail brush and soaked in bichloride solution before making vaginal examinations, and very few of these had been necessary. The nurse was experienced and reliable, and her last case was a patient of mine that had given no trouble. The house in which the patient lived was new and pleasantly situated upon elevated ground. The bath room and closet did not communicate directly with the room, but the patient used it during the days immediately preceding her labor, and I have thought of this as a possible source of infection. Not infrequently persons dump the basin while sitting upon the closet, with the result of causing a rush of air from the pipes. Infection undoubtedly began in the uterus, and this was favored by the escape of the waters three days before labor set in. The presence of virulent pathogenic germs in the birth canal was further demonstrated by infection of the infant's eyes.

This is the only fatal case of puerperal fever I have had, and it represents the three hundred and ninety-fourth labor in a series of consecutive cases collected since my last report.

We have had so few statistics given of the puerperal mortality in private practice that we are compelled to look to hospital work for what we must consider a legitimate death rate. These institutions, thanks to the adoption of antiseptic precautions, have published series of five hundred, six hundred, and even one thousand consecutive cases of labor without a death. Such records may be exceptional, but we can safely say that the results obtained in properly conducted maternities should not exceed one death in every two hundred cases. We may accept, then, as a basis for comparison the ratio of one to two hundred as the unavoidable death rate of child-bearing.

I now ask your attention to some investigations I have had conducted to ascertain the puerperal mortality in the District of Columbia during the past twenty years ending June, 1894. Statistics are proverbially misleading, and I do not claim that these figures represent more than an approximation of the truth.

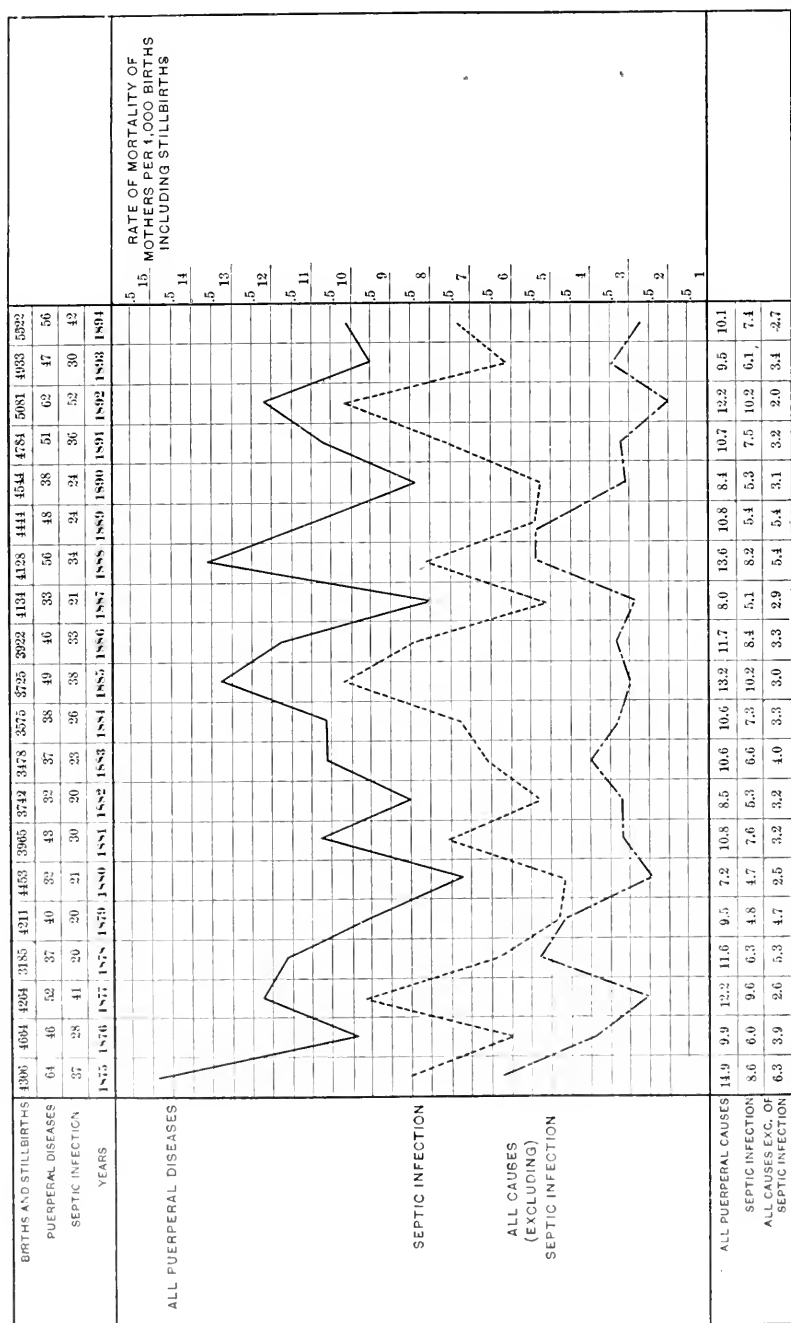
In the period mentioned there were 907 deaths from all causes during childbirth out of 85,057 births reported, or 1 in 93—a fraction over one per cent. This mortality is no doubt in excess of what is actually the case, because the birth returns are by no means complete, while all fatal cases are of necessity reported to the Health Office. Of these 907 deaths, 600, or over two-thirds, were due to the one cause of infection, and only 307 to all other causes combined. This is a startling announcement—that two-thirds of all the puerperal deaths are due to a single factor, and that a preventable one. Some deaths may be incorrectly included among those due to infection, but more than likely the error is the other way and cases that die of sepsis are classed under other diseases.

Comparing the result of the first ten years with that of the second, we obtain the following: During the first ten years ending in June, 1884, the ratio of deaths from all puerperal causes to the total number of births was one to ninety-four, and during the second ten years ending in June, 1894, one to ninety-three. These results are practically the same and do not indicate any improvement in practice during the second decade. The proportion of deaths from puerperal fever during the first decade was one to one hundred and fifty, and during the second decade one to one hundred and thirty-five.

These figures show that the general result was about the same in the two decades, while the proportion of deaths from puer-

peral fever was decidedly greater in the last ten years. This is the more remarkable when we consider it was during the latter period that the importance of antiseptic precautions was more generally understood.

The result obtained by the application of that knowledge to private obstetrical work is in marked contrast to the experience of hospital management. I am under obligations to Dr. George Barrie for having looked up these statistics and for the preparation of the accompanying chart, which clearly shows the comparative death rate from all causes combined, from puerperal infection, and from all diseases except that of puerperal fever. The result of 1874 is thrown out because the birth returns for that year were incomplete. The figures in the first row at the top of the chart represent the total number of births and stillbirths for each year from 1875 to 1894 inclusive. The second row is the number of deaths from all childbed diseases, and the third row the number of deaths from puerperal fever. The lines represent respectively the death rate of mothers per one thousand births, from all causes, from puerperal infection, and from all diseases excluding infection. The rate of each of these per one thousand is represented in figures at the bottom of the chart. Our attention is attracted in the first place to the remarkable uniformity of the rise and fall of the upper two lines. The increase and decrease of the death rate from all causes is accompanied by corresponding changes in the death rate of puerperal infection. The lower line shows the same in a less marked degree. In 1875 we notice a decrease in all three. The deaths from all causes, inclusive of infection, continue to diminish until 1877, while the death rate from all causes combined begins to rise in 1876 and reaches 12.3 per thousand in 1877. This increase is explained by the rise of the second line, showing conclusively that puerperal infection was alone responsible for the increased death rate, since the deaths from other causes continued to lessen. From 1877 to 1880 there was a steady and decided fall in the general death rate and deaths from sepsis, in spite of a rise in 1877 and 1878 of the number of deaths from causes exclusive of infection. From 1880 to 1887 the death rate from all causes, exclusive of puerperal fever, undergoes so little change that it can be left out of consideration. But from 1880 to 1881 puerperal fever increases and pushes up the general death rate in a corresponding degree. From 1881 to 1882 it declines, and



with it the total number of deaths. From 1882 puerperal fever increases steadily and reaches its maximum of over ten per thousand in 1885, and in the same interval the general death rate increases and reaches the highest point with one exception. From 1885 to 1887 there is another decrease and both lines fall five deaths in each one thousand cases. Beginning in 1887 there is a rapid increase of the general death rate, which in 1888 reached the highest point in the twenty years. This was from two causes. Infection was one, but not to the same extent as before, since its rise at this point was not proportionately great. The other factor was the sudden increase of deaths from other causes than infection. This latter element was practically unimportant from 1880, but in 1887 it began to rise, and in 1888 and 1889 reached its highest point. From 1888 to 1890 all three decreased. From 1890 to 1892 the number of deaths from puerperal fever was doubled and the general death rate was increased four per thousand from this cause alone, since death from other diseases decreased during the same period. From 1892 to 1893 puerperal infection destroyed fewer lives and the total number of deaths diminished, in spite of an increase in the number of deaths from other diseases. Finally, comparing 1894 with the previous year, we find an increase in the death rate due entirely to puerperal infection, since deaths from other causes were diminished.

The second chart shows the proportion of deaths from puerperal fever and the three other diseases next in importance.

These charts picture clearly to the mind the immense influence puerperal infection exerts over the death rate of child-bearing, and, although I have placed these facts before you very imperfectly, I hope I have made it clear that there is need of reform in Washington as well as elsewhere.

I am not sanguine enough to expect any general change in practice. The world moves slowly and great truths are slow to be recognized. It is now almost the end of the half-century since Semmelweiss made known the doctrine of puerperal infection. In vain he wrote and urged the importance of his discovery, and died eighteen years afterward without exciting a responsive enthusiasm in the members of his profession. Virchow, as late as 1864, condemned the theory and ridiculed it before the Berlin Obstetrical Society. Gradually, however, it claimed recognition, until to-day it is almost universally admitted, and

in the past few weeks the debt humanity owes Semmelweiss was acknowledged by the erection of a monument to his memory at Budapest. Thousands of lives have been saved in maternity institutions by the adoption of antiseptic precautions, while failure to do so in private practice still furnishes a large number of preventable deaths. Child-bearing is less fatal now than it has ever been in the history of medicine, and the result will be even better with the close of the present century, which is so near its end. The next generation of physicians will be the men who graduate with the present knowledge of the importance of the subject, and aseptic principles will be fully applied to obstetric work.

To hasten this period the laity should be educated to understand the importance of the subject and to demand the benefit derived from this greatest of modern discoveries for protecting the life of the parturient woman. Puerperal deaths must no longer be attributed to the divine will of Providence, but to the shortcomings of mortal man.

SPINAL SYMPTOMS IN HYSTERIA.¹

BY

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IF diseases, like crimes, were amenable to the laws, the victims of the disease in question would long since have crowded our reformatory institutions, for this disease represents the most dangerous and accurate of all counterfeits. So clever is the imitation, so innocent the mien of the individual who presents this false picture, that great skill is oftentimes required in the detection; and it is not strange that men of experience and learning should occasionally fail in their judgment and accept the spurious representation as genuine coin.

Despite the apparent irregularity and diversity of its symptoms, so that hysteria has been spoken of as possessing the forms of Proteus and the hues of the chameleon, the manifestations of

¹ Read before the Obstetrical Society of Cincinnati as one of the papers in the discussion on Hysteria. The greater portion of this article is based upon the admirable essay on hysteria in "Traité de Médecine," Charcot and Bouchard, vol. v.

this disordered mental state are governed by fixed laws, and possess certain characteristics, peculiar to themselves, which always serve for identification.

It is one of the great triumphs of clinical medicine in our day and generation that the recognition of this neurosis, whose limits are as yet ill-defined, as a disordered mental state should have become general belief; and it is to Charcot that we are principally indebted for this acquisition. The old idea of the intimate association of hysteria with uterine disturbances, from which, indeed, the disease received its name, is no longer current. It is true that the great Sydenham had taught that the uterus was by no means an essential factor in the development of hysterical symptoms, for he described hysteria in the male; and showed that many cases in women were wholly independent of organic lesion in the pelvis; but his teachings were not sufficient to change the prevalent opinion that hysteria was especially a disease of the female sex, and in some manner always more or less intimately connected with the organs of generation.

It is to-day scarcely proper to speak of hysteria as a neurosis. It is true that there is no anatomical basis for classifying it with organic disorders, that it must be classed as functional, but we should substitute for the word neurosis another which more accurately fits the case, and should speak of hysteria as a psychosis. It is to Charcot, again, that we owe our knowledge of the dominant influence of some fixed idea in producing many of the gravest symptoms—as certain forms of paralysis coming on after injuries, contractions, hyperesthesia, anorexia, loss of speech, etc. This fixed idea, once firmly established in the mind, becomes so powerful that it cannot be controlled, and finally realizes those objective symptoms of which it was in the first instance a mental picture.

It is not within the scope of this paper to trace the influence of either the predisposing or exciting causes, such as, in the former category, the influence of age, sex, and heredity; and in the latter, of mental or physical shock, of the infectious or other acute diseases, or of various forms of intoxication. There is this to be said, however, in regard to the development of hysteria as a result of traumatism, that in these cases there is usually a greater mental shock than physical injury inflicted. The injury itself only determines the point at which the hysterical manifestations show themselves later in the patient's history. It is the fright

or terror accompanying the physical violence, often insignificant in degree, which leaves a certain disturbance in the mind of the patient, an emotional state that ultimately leads to the appearance of objective symptoms projected toward the periphery from the central disturbance.

I may allude to a fact well known to all, the influence of imitation in the development of symptoms in those who are, from any cause, predisposed to hysteria.

The consideration of the clinical picture of hysteria, whatever form may be assumed by the symptoms, offers for our study two classes of phenomena, one being stable, permanent, often existing without the knowledge of the patient, the other more irregular, often intermittent (though lasting a long time), generally more conspicuous than the indications of the first class. The former are called *stigmata*, the latter *accidents*. The former are the more important for our study, inasmuch as it is by their recognition that the true nature of the malady is revealed; they constitute the evidence in the case, and usually last as long as the altered mental state continues. The incidents of the second class are not essential to the clinical picture, often are entirely wanting, and when present are frequently determined by some accidental condition wholly independent of the causes of the original attack.

The fundamental troubles, the *stigmata*, are of three classes—sensory, motor, and psychical.

The sensory are again subdivided into anesthesia, hyperesthesia, and dysesthesia. First in importance and most striking of all are the anesthetics. Their presence had long been recognized, though their nature was not understood. Many a poor hysterical patient has doubtless suffered the death penalty on the charge of sorcery, or has served as evidence against those accused of this offence, because of the loss of cutaneous sensibility, as evidenced by imperfect response to pricking, burning, or tearing of the skin. The name *stigmata* is derived from the period when belief in witchcraft was general, for the anesthetic areas were called the marks of the devil—*stigmata diaboli*. Hysterical anesthesia may extend to sensations of every kind. It may be partial or complete. It may affect only one variety of common or special sensibility, or several of these simultaneously. It may be superficial or deep, and may involve either the skin or mucous membranes, or both. Sensibility may be only diminished or com-

pletely abolished. It may happen, though such cases must be of the greatest rarity, that there are no disturbances in any of the forms of sensation. So unusual is this occurrence that the perfect preservation of the sensory functions is, in itself, enough either to cast a doubt upon the diagnosis or to raise a suspicion as to the care taken in the investigation of the case.

Anesthesia of the skin may appear in the most varied forms. There may be perfect perception of contact, yet no response to painful impressions, to pricking, pinching or burning, to heat or cold, or to electrical stimulation; or each of these in turn may be retained with loss of any or all the others, though it will rarely happen that the sense of contact is alone abolished. Failure to respond to painful impressions is known as analgesia; mere diminution without loss of sensibility is called hypesthesia; the total abolition of sensibility is known as anesthesia.

Loss of deep sensibility, affecting the muscles, bones, articular surfaces, and glandular organs, is by no means uncommon. It is in such cases that we find it possible to traverse with long needles the entire thickness of a limb or of the hand, to give abnormal and strained positions to the joints, to subject such sensitive organs as the testicle to great pressure, without eliciting any manifestation of pain.

Among the most interesting of sensory disturbances is the loss of the muscular sense. This can be placed in evidence in one of many ways. In the first place, unusual strain upon the muscles, as when a limb is maintained in a trying position for an unusual length of time, gives rise to no sensation or manifestation of fatigue. Positions which, under ordinary circumstances, could only be assumed by trained athletes, and then only for a short time, are maintained almost for an indefinite period because of the impairment of the muscular sense. Another method of testing for this sensibility is by asking the individual to lift simultaneously in the two hands, let us say, objects of unequal weight. Now, the healthy individual, before making such an effort, gauges, by means of his muscular sense, the degree of resistance to be overcome in the act of lifting, and proportions the muscular effort in accordance with his judgment. Where the muscular sense is absent, the effort is likely to be in no way adjusted to the work in hand, so that it is either excessive or inadequate, and is more than likely to be made with the same force upon the two sides, so that the lighter weight is often raised

with great velocity. A third test of the muscular sense, inasmuch as it relates to position, is made by having the patient close his eyes, giving to the arm or leg of one side a certain position, and then requesting him, with the eyes still closed, to give to the corresponding member of the opposite side a similar position. The effort usually results in failure where the muscular sense is defective.

There may be absolute or partial insensibility of all mucous surfaces in relation to the spinal cord. I mention only the mucous membrane of the vagina and vulva, of the urethra, and of the anus and rectum.

Now, it will happen in but the fewest cases that there is general anesthesia—*i.e.*, over the entire cutaneous surface. More commonly it is one lateral half of the body, or what seem to be irregularly disseminated islands of anesthesia in the midst of a perfectly healthy skin. Sometimes these latter assume the form of bands or bracelets, or geometrical figures, whose main boundaries are for the most part perpendicular to the axis of the limb. The peculiarity of this distribution is, however, always such that it cannot be explained by the anatomical distribution of any nerve or set of nerves, or by any central lesion—a symptom so noteworthy that it alone suffices for the diagnosis of hysterical anesthesia. Hemianesthesia, which is very common, is oftentimes more difficult of diagnosis. According to the French authors the left side suffers more frequently than the right. It may or may not be accompanied by anesthesia of the mucous membrane in the same side. Occasionally there is failure of the special senses on the same or on the opposite side. Where it is the opposite side a central cause can, of course, be excluded and the hysterical origin of the trouble is clear.

One of the most important landmarks in the recognition of all hysterical anesthetics is the preservation of the deep reflexes. The patellar reflex, the ankle reflex, the cremasteric, the abdominal, the respiratory reflex following the application of cold to the skin, are all maintained. The same is true of the pupillary reflex to light, to accommodation, and the reflex dilatation of the pupil, which can always be noted when any sensory surface is subjected to pain. Even where the painful impression is made upon the area of hysterical anesthesia, this reflex dilatation of the pupil will occur, if the irritation be of sufficient intensity. The reflexes which may be abolished are the response to tickling the

soles of the feet, the palpebral reflex which causes closure of the eyes when the conjunctiva or cornea is touched, and the reflex that causes vomiting when the palate or fauces are tickled.

A second fact well known to clinicians is the inconstancy of localization of hysterical anesthesia. The area may shift from one side of the body to a corresponding area upon the opposite side, either with or without the assistance of magnets and other appliances—the so-called phenomenon of transfer. Violent emotions, injuries of any kind, the momentary effect of various remedies, may all cause a temporary restoration of sensibility in areas previously anesthetic; the same phenomenon may occur during sleep, or when the attention is profoundly engaged upon some subject outside of the patient's personal condition, or in the hypnotic trance or state of somnambulism.

A curious and important fact in relation to hysterical anesthesia is that it often exists without the patient's knowledge. Patients will very often rest under the suspicion of simulation. Many features in connection with the cases will strongly suggest malingering; yet the anesthesia in these cases is real, though it does not seem to cause the patient any annoyance, mainly because he is ignorant of its existence.

The most explicit and interesting theory of the causation of these anesthetics has been given by Janet. According to this author hysterical anesthesia is a species of distraction. He compares the central perceptive area for sensations to the sensory expansion in the retina, and draws a parallel between visual perceptions and those of general sensibility in this way: that, inasmuch as there may be limitation of the visual field, so there may be, in cases of hysterical anesthesia, limitation of the field of consciousness. The individual has lost the power of receiving more than a limited number of impressions from certain parts of the surface. Now, no individual is capable, even in health, of assimilating, if this word may be employed, all of those elementary sensations (such as those of sight, hearing, touch, taste, muscular sense, etc.) which he is constantly receiving, because the attention is always engaged in preponderating degree with one or the other variety, so that the remaining sensations, which are real, though not accurately perceived, remain in a state of subconscientness and are neglected. The largest number that can be simultaneously recognized as distinct impressions may be said to represent the field of conscientness of the individual.

Now, according to Janet, where the field of consciousness is limited, so that the number of elementary sensations perceived as such is below the normal, it will ultimately happen that those sensations, which are least perceived, finally become lost altogether, just as an individual with eyes of unequal strength will gradually learn to neglect the sight of the impaired globe and will use for fixation and for accurate vision the stronger eye. The difficulty in cases of hysterical anesthesia is not in the anesthetic area; it is in the weakened perceptive power, which, because of its own insufficiency, can no longer accommodate or find room for or assimilate more than a limited number of impressions, thus resulting in the exclusion of others. The merit of this theory is that it places the responsibility where it should justly belong, on the central organ of perception, though the symptoms are entirely peripheral; and makes the mental state responsible for the causation of a condition that might, at first sight, seem to rest upon some fault either in the reception or transmission of impressions. This theory is, however, inadequate, in that it will not explain the loss of electrical sensibility, nor why the anesthesia should affect one lateral half of the body with such frequency.

In place of anesthesia we may have, in hysteria, hyperesthesia, or what is known as paresthesia. Now, it is certainly true that hysterical patients may, like others, suffer from occasional neuralgias, depending upon causes identical with those which occasion these painful attacks in other persons. It may even be that such neuralgias become more marked at the menstrual epoch. This in no wise implies any hysterical origin. The true hysterical hyperesthesias are those which can hardly be traced to neuralgia or other cause of pain; they are for the most part exaltations of sensibility, developed under the influence of some controlling thought or fixed idea. There is no better example of this condition than the affection which has received undue clinical importance under the heading of railway spine.

Unlike the hysterical anesthesia, the hyperesthesia is not limited to one lateral half of the body, nor does it encroach upon so large an area of the cutaneous surface. It is most likely to occupy some prominent part of the body that may have been exposed to injury, or that is so situated as to make it more liable to traumatism. The vertex of the skull, the occipital protu-

berance, the spinal processes, the elbow or knee joints, the nipple or the mammary gland, are favorite situations.

The hysterical character of the painful sensibility can readily be determined by engaging the patient's attention and then making palpation or pressure, or even resorting to more forcible irritation. With mental concentration upon some other subject, it will frequently be found that the sensibility in the affected part is in reality lower than in the surrounding healthy portions of the skin. Let the patient but know that the examination is being made, and there is immediate alarm and great pain.

The hyperesthesia may involve not only the skin but deep-seated parts or glandular organs, such as the testes, ovaries, etc., and then it will happen that pressure over the painful area induces a spasm or hysterical crisis.

Motor phenomena show modifications similar to those which we find in the sensory sphere. The changes here are all in the direction of diminished action. Voluntary movements are slowed, are performed with less energy, and lack the precision that characterizes them in healthy subjects.

Perhaps the most striking of motor phenomena is the tendency to contraction shown by many of the voluntary muscles, a sort of increased irritability not unlike the tendency to spasmodic contraction and excessive reflex movements seen in organic disease of the spinal cord. This has been termed the diathesis of contraction.

Hysterical patients suffer from a curious form of ataxia, dependent upon their inability to receive more than a limited number of impressions simultaneously through the muscular sense, so that movements of any complexity can only be performed with the aid and controlling influence of the eyes or with the guiding sensation of touch. The distinguishing feature of such ataxic movements is that they present the abnormal alteration only when a conscious effort is made to accomplish some particular object; in movements that have become automatic there is no lack of precision. When the aid of vision is required it may be that sight will only be necessary to commence the desired movement, which, once begun, continues without further control.

The diathesis of contractions, to which allusion has been made, shows itself by a tendency to spasmodic contractions upon very slight superficial irritation. This tendency may exist in

weakened muscles, may be localized or have a general distribution, may be accompanied by exaggerated reflexes or by slight modification of electrical excitability. It can be developed by sudden movements of extension or contraction, by rubbing, by a breath of air blowing upon the surface, by encircling the limb by a constricting band. Like the anesthesia of the limb, it readily disappears under the influence of suggestion or somnambulism, and often during sleep.

Aside from the so-called hysterical attacks, nothing in connection with the disease is more striking than the more or less lasting paralyses and contractions. The patient recognizes the paralytic condition, while the anesthesia may escape his attention until discovered in the medical examination. Momentary conditions of paralysis or contractions may precede the hysterical attack; they are of comparatively little consequence. Paralyses or contractions which follow the attacks are apt to be more lasting and require very frequent attention. They occur most commonly after injuries of some sort, and the amount of damage inflicted bears no relation whatever to the extent or degree of the succeeding contraction or paralysis. An appreciable interval frequently occurs between the receipt of the injury and the appearance of these symptoms, an interval in which the mind becomes more and more occupied with the idea of the injury that has been done and of the consequent helplessness likely to supervene.

Infectious diseases are sometimes followed by hysterical contractions or paralyses, the weakened physical condition being the first element in suggesting to the patient the probability of a more permanent loss of power.

Hysterical paralyses are rarely accompanied by any trophic lesions. There is no tendency to atrophy of the affected muscles, none to edema of the limb. The reflexes are not impaired; if any change is noted, it is usually in the direction of exaggeration. They are in nearly every instance accompanied by disturbance of sensibility, anesthesia, or, it may be, hyperesthesia. They are rarely complete, in the sense that, if it be hemiplegia or paraplegia which affects the individual, or if one extremity alone suffer, there is always some particular movement or set of movements, some muscles or group of muscles, not disturbed by the apparent loss of power in other parts in the vicinity. These paralyses are of varying duration and show a marked tendency

to reappear. The loss of power may alternate with periods of tonic contraction.

Both the paralysis and the contractions may come on suddenly or slowly. The disappearance may be equally abrupt or be gradually accomplished by the treatment. In all cases the electrical reactions remain unchanged.

In cases of hysterical contractions there is very marked resistance to every effort to straighten the contracted member. Indeed, it would almost seem at times that, while under examination, the rigidity increases. In contractions due to organic lesions the rigidity is not so marked, nor is the resistance to passive motion such as to interfere wholly with the manipulation. Contraction from spinal disease occurs for the most part from conditions in which the reflexes are exaggerated.

Painful conditions about the joints give rise to great perplexity in diagnosis and may lead to marked contraction of the muscles around the articulation. There may be shortening, adduction, and partial flexion with complete immobility, when the hip joint is affected, so that the diagnosis from coxitis is by no means easy, even when the patient has been anesthetized. The patient may be able to walk with the aid of a cane; in severe cases he is confined to his bed. In hysterical joint affections there is always an area of hyperesthesia, extending for some distance beyond the joint; the joint is not in itself sensitive to pressure, so that the trochanter or knee will bear considerable force without any indication of suffering.

A singular manifestation of incomplete paralysis is furnished by that curious condition known as *astasia-abasia*. It is characterized by partial or complete loss of power in those muscles whose co-ordination is necessary for walking or standing; but the loss of power shows itself only in the effort to accomplish one of these movements. In any other position, as when reclining or seated, the affected muscles show themselves possessed of normal power and obey readily all the impulses of the will. A patient may be able to move, but unable to walk or stand. Nothing could perhaps more closely illustrate the predominant cerebral influence than such an association of symptoms.

Lastly, I may be permitted to allude briefly to trophic disturbances in hysteria. The possible association of the two has only been recognized in recent times. Most of these troubles take the form of cutaneous disorders. There may be pemphi-

gus, vesicular erythema, gangrene of the skin, hemorrhage either in the form of ecchymosis or bloody sweating, local asphyxia, or edema, either white or bluish in color.

The long continuance of a hysterical contraction sometimes, though rarely, leads to contraction of the tendons or to atrophy of muscles, limited to the limb which is the seat of the hysterical paralysis or contraction. The atrophied muscle, whether the diminution in volume have taken place slowly or rapidly, will show the normal reaction as to reflexes and to electrical tests.

These are the more important symptoms that may be at times thought to be in relation with spinal disease. I have not in any way entered upon their treatment, for that would involve the consideration of the whole subject of the management of hysteria. Success will be most generally found in strict adherence to the old Latin motto, *Suaviter in modo, fortiter in re.*

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HYSTERIA IN THE MALE.¹

BY

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"HYSTERIA," according to the definition in Pepper's "Practice," "is a functional disorder of the nervous system, characterized by depression of the will power, exaltation of the emotional nature, and an infinitude of shifting, polymorphic nervous disturbances more or less clearly simulating various organic diseases." It is not only more frequently seen in women than in men, but the former undoubtedly present the disorder in a much more intense and serious form than the latter. There are seldom seen in man the extreme disturbance of sensation or motion, the contractions, the vomiting, and the hystero-epilepsy. In my own personal experience the condition has most often, though not always, approached that which is found in neurasthenia, and has been due to overwork, intense application, or overpowering anxiety. In other cases the immediate cause seems to have been unreasonable apprehension of the gravity of

¹ Read before the Obstetrical Society of Cincinnati, December 6th, 1894, as part of the discussion on Hysteria.

some trivial malady or the fear of failure in assuming some new and unaccustomed obligation. One of the most persistent and difficult cases I have seen occurred in a man accustomed to heavy and difficult business responsibilities, who completely broke down as the date of his approaching marriage drew near. I may best, perhaps, present the subject by the citation of a few typical examples.

A man past middle age, who had made a conspicuous business success from a very small beginning, and whose career had been marked at times by failures of a most overwhelming and disheartening character, rushed into my office one day, apparently in the greatest physical distress. His face was flushed and betokened abject terror; he clutched the region of his heart, and every effort at explanation seemed to bring on a fresh attack of physical suffering, the nature of which he tried in vain to make clear to me. He could not sit quiet, but rushed about the room almost frantic and gasping for breath. I felt his pulse and found it 72, full, strong, and regular. I made him lie down and covered him with blankets, for he complained of chills and cold, and shivered from head to foot. After a cup of hot coffee and an hour's rest he was sufficiently recovered to drive home. He could give no sufficient explanation of his condition or how it came on. He said he could not breathe and that he suffered from an overwhelming stabbing pain in his heart. A night's rest under the influence of a Dover's powder, and the next day he appeared in his normal state of mind and health. Subsequently the cause of his attack was made apparent. He was, I have said, a man who had secured a large success in life, due to an energy of character that had enabled him to overcome unusual obstacles and to withstand unusual losses. He had been engaged in a manufacturing enterprise of great magnitude, which was approaching completion, but in which he had exhausted all of the funds—a million of dollars—which had been supplied him as manager. Two hundred thousand dollars more were needed at once to save that which had been exhausted in the then incomplete works, and the very morning he had come to me he had passed through a stormy interview with the board of directors and finally compelled them to accede to his demands. The tension of the struggle over, his self-control gave way in the manner I have described. This man was of a decided neurotic temperament. He had been an excessive user of the strongest

tobacco. He had at times lived largely on stimulants in place of proper quantities of nourishing food, and had for long periods only secured sleep by the use of chloral and other anodynes. So far as I know, no other outbreak has occurred, and he has continued for years to occupy positions of responsibility and trust which have brought him ample fortune. The proper interpretation of such a case is not always possible until subsequent events determine whether the outbreak is not the forerunner or beginning of serious and permanent mental impairment. In the following history such proved to be the case: An army engineer had constructed a dam for the improvement of the navigation of a Western river. The river, however, refused to run over the dam and cut into the bank, leaving the work high and dry, and made a new passage for itself, and the government was put to large and unlooked-for expense to compel it to take the expected course. A board of inquiry was ordered to investigate the responsibility of the supervising officer. I was sent for early one morning to see the officer. I found him in bed in a state of the greatest excitement. He expressed the greatest apprehension lest the government should hold him and his personal estate responsible and his wife and family should be left unprovided for. He had passed the night in the greatest distress, weeping, wringing his hands, and walking the floor. An hour's talk allayed his excitement to some extent, and later in the day he was calm enough to go out for a walk. The next day he came to my office as composed as ever. He had had a good night's sleep under some simple anodyne, and said he could not understand his mental perturbation the day before, as it now seemed perfectly clear to him that his apprehension was groundless. In two months he was the subject of pronounced dementia, and in six months he was dead.

Many cases of hysteria in the male approach very nearly to that of neurasthenia; indeed, it may be a question as to how they should be classified. The following cases belong to this class. A man of 30 or 35 years, of most excellent moral character, had, after years of continuous work, secured a partnership in a large contracting firm that made him not only independent, but promised almost certainly a fortune in the near future. He was one of the leading spirits in the affairs of his firm, and was always entrusted with the calculations upon which bids were made on important pieces of work, or with the important and deli-

cate negotiations necessary in securing public work. While unassuming and unpretentious, he was a well-possessed and self-reliant man and free from all bad habits. He became engaged to be married. As the time approached he broke down completely and felt that it was absolutely beyond his power to carry out his engagement. He would lie in bed for days, sometimes give way to fits of weeping, and utterly unable to control or compose himself. He would sleep a few hours in the first of the night, and lie awake worrying and pondering the rest. For this state of mind he could give no reason. He simply seemed overwhelmed with a sense of ill-defined apprehension. He had no business troubles; on the contrary, his partners urged him to absent himself from work as long as he chose. His affection remained unchanged, and he had had no trouble or misunderstanding with the object of his affections. He put himself under specialists; he travelled and kept from all business, but all to no purpose. His condition lasted for a year, when gradually he grew better, married, in due time became a father, and for years has successfully managed the intricate affairs of a large contracting firm in a most successful manner. Is there in such a case some hidden and unconfessed experience which remains concealed and which is the cause of this want of mental and moral balance? And is such a mind likely, under some future strain, to become more permanently unhinged and unbalanced? Some of these cases, I believe, have their real origin in fancied sexual incompetency. Another phase of hysterical manifestation in man is shown in the following:

A professional man, who had already secured an ample competency and who was engaged in a growing practice, became alarmed about a persistent sore in his nose, which he feared was a cancer. He brooded over his troubles until he passed into such a condition of neurasthenia that he was compelled to give up all work and retire to the country for a year. He could not assume any responsibility without breaking down completely. After a year he came back to work, but has never been fully himself. Sometimes after a trying case or repairing a building he owns, sometimes without apparent cause, he finds that he has lost his self-control, that he has become sleepless, and he wanders around and seeks advice in the most hopeless way. This condition he can sometimes control and conquer by a hunting expedition, of which he is fond, and after some days of hard

work and continuous exercise he will regain his usual composure and ability to sleep. He has led a humdrum life, free from all dissipation, without variety and social pleasure, and has confined himself to his professional routine very strictly. In young boys from 7 to 10 I have seen an unstable disposition and nervous irritability associated with an elongated and adherent prepuce, bordering on hysteria, and with the relief of this condition by circumcision the disappearance of all the unpleasant symptoms.

In regard to the treatment of hysteria in man I have nothing especial to say. It is less frequently than in women, I believe, dependent on anemia and want of proper nourishment, and therefore the question of a sufficiency of nourishing food is not so important and so hard a difficulty to meet. In those cases, however, where excessive use of stimulants and anodynes or narcotics has been indulged in, proper feeding is of extreme importance, in order to place the individual in a position to combat the cravings to which he has yielded. Massage, especially in connection with Turkish baths, will often have a happy effect, but prolonged rest in bed is not, in my experience, of frequent benefit. Relief from the anxiety of wearing and anxious duties, combined with prolonged and even severe out-of-door exercise, is more likely to restore the true and healthy condition of mind and body than anything else. The ability to take natural and refreshing sleep is usually the first step toward improvement.

THE RELATION OF MENSTRUATION TO THE OTHER REPRODUCTIVE FUNCTIONS.¹

BY

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(With ten illustrations.)

MENSTRUATION, which occurs in all erect animals, is nothing but a shedding of the superficial layers of the endometrium, and is a kindred process to the moult in birds and the dropping of

¹ Read by invitation before the Chicago Gynecological Society, April 19th, 1895.

the horns and hair in the deer tribe, as well as the loss of the dermal structures which occurs periodically in so many different classes of animals. There have been so many superstitions connecting it with the other reproductive functions that I must ask you to bear with me while I attempt to unravel the chaotic state which still influences our ideas. The two functions with which it is most often confused are ovulation and "the rut." Ten years ago it was very generally believed that ovulation was the cause of menstruation ; so much was it the case that in most of our older authors you will find the terms used as though they were synonymous. But with the literature of this subject many of you are more familiar than I am. You all know how fierce the battle has been. The old idea has gradually given way, until now very few if any men who are operators believe that they have any if even a slight connection. You know as well as I do the history of the scepticism which was started by De Sinety, and how it has grown and put operators to a more careful examination of their specimens, until it has been proved beyond a doubt not only that the ovary is active before birth and continues to form Graafian follicles as long as the woman lives, but also that during menstrual life she probably does not ripen more than four or five ova during the year. This is borne out by my operative experience. Our favorite time for operating is on the fifth day after menstruation. For nine years I have watched closely, and of all the hundreds of pairs of ovaries that I have handled and examined I have never seen more than a dozen in which there was a freshly ruptured Graafian follicle. Some may claim that the vast majority of those were diseased ovaries and therefore should not count, but I have seen no less than fifty pairs of healthy ovaries that were removed to stop the growth of fibromata, and not more than two or three of them contained a ruptured follicle. So that the percentage is near the same in both healthy and diseased organs.

According to a recent paper by Mr. Walter Heape, of Cambridge, England, a similar state of affairs exists in the monkey. So that we are forced to the conclusion that the rhythm of ovulation is not coincidental with that of menstruation, and that their association, whenever it occurs, is accidental and in no way dependent on each other. They are two totally independent functions, both of which must be kept going if reproduction is to be continued, the cessation of either producing sterility. The

only connection between them is that, if the four or five ova happen to ripen near the end of the twenty-eight day menstrual cycle, the congestion of the pelvis necessary to bring on menstruation so softens the ovary that this follicle is more liable to rupture. This, I believe, is the only connection between menstruation and ovulation.

So far as I know there is no systematic study of the "rut" in print. Some hundreds of years ago it was announced that it was identical with menstruation, and the error has been faithfully transmitted without question from one generation down to the next until the last decade. Along in the eighties some of the more thoughtful minds began to be sceptical and advanced a few reasons for their disassociation. But there is no one heretofore who has gone at it systematically, and for what follows I will have to depend very largely, if not entirely, on my own studies. My belief is that both the rut and ovulation, in the natural state of the animal, depend more on the nervous system and the general well-being than anything else, and that menstruation has nothing to do with either. For a short time let us look at the animal in its natural state. Our common American deer is as good a subject as we could have to study. In the winter time he is half-starved from lack of vegetation in the woods; the low temperature, giving snow and ice, makes his conditions of life harder not only from the lack of the proper amount of food, but makes him an easier prey to wolves and other carnivorous animals who are constantly on his track. The consequences are that it is about all his economy can do to preserve life. After the winter is over he sheds his winter coat and is provided with a spring suit of lighter hair, and while this is going on he is also growing new weapons of defence in the shape of antlers in the male. The female about this same time is far along in her pregnancy, and about the time these antlers are fully grown she drops the fawn. So that from the early winter until late in the spring both male and female have about all they can do to support life and prepare them for the battle of existence. About the time the fawns are dropped vegetation is most plentiful and lactation sets in. During this time the male has about all he can do to get food enough for himself and stand anxious guard over his more or less helpless family. As the season advances there is more and more nutriment in the ripening vegetation, and there is less and less demand on the

mother, as lactation is being cut down and the fawn begins digesting the grasses around him. About this time the heat of summer comes on, the little streams begin to dry up, so that between the enervation of the heat, the drought on the vegetation, and the distances having to be travelled for water, the animal once more has about all he can do to support life. So that you may say fully ten months in the year the deer has about all he can do to support life, without the extra exertion incident to the rutting season. After the fall rains set in the autumnal grasses spring up everywhere, the antlers of the male and new suit of hair of both are fully grown, the heat of the summer is gone, food and drink are plentiful everywhere, the fawns are weaned, and both sexes have gotten into the very pink of condition. Then, and only then in the whole year, comes "the rut." The rut to them, like most other animals, means an unwonted amount of physical exercise besides the every-day runs for life from their natural enemies. There is an immense amount of unusual energy used up. If a doe dislikes the attentions of a special buck, there are miles and miles of chasing and racing; if jealous males meet, furious battles are the result; and the strain that is put on both sexes could not possibly be endured at any other season in the year. By the time the cold weather comes on the climatic deprivations and winter dangers set in, and with their approach the "rut" closes. If you will study closely wild animals of every description you will find that this law holds good: that when climatic and other conditions favor the highest development of their physical powers, then, and only then, comes the "rut." In all wild birds the law holds good, for it is then, and only then, that they can stand the strain incident to love-making. To prove this all that any of you have to do is to watch the birds in your yard. Our common crow blackbird is a very good type. In the winter he is marauding around the rice fields of the South, leading a tramp's existence in a country that does not belong to him and to which he has only gone to escape the rigors of his Northern home. He is the first signal of spring. For several weeks he goes in flocks about over the fields, gathering up the worms and grubs which have just come from the deeper levels of the earth to get a breath of air nearer the surface of the ground, which was ploughed during their winter hibernation. After his long flight from the South this saucy gentleman leads several weeks of an almost ideal existence. His food is plenti-

ful everywhere, and he loafs about like an old-time nabob and grows glossy and slick with his increased amount of natural food. Just as the delightful spring weather gets into its brightest state, and he is thoroughly rested from his long migration and is strong and hearty, then, like the young man's fancy, he turns to thoughts of love. The pairing season is the time when he uses up more foot-pounds than any other time in the year. His fantastic dances, his racing and chasing after the females, and the savage fights he has with his rivals are something that, if we knew him only in his ordinary state, we would deem impossible for this grand loafer. Then come the care of the young and the long flights for water and sustenance during the drought of the summer. Having gone through the moult, autumn once more finds him in flock, and by the time the first frosts fall he is off on his Southern tour. So, then, in the wild state the "rut" is the cap-stone of perfect physical condition. The same law holds good for the carnivora of the tropics. Their rainy season and droughts making provision of food an alternating and changing condition, it will be found that the "rut" comes with them when food is most plentiful. When it comes to the artificial states produced by domestication the whole picture changes, for food is more or less plentiful all the time, and the consequence is that we have changed the natures of our domestic animals in these particulars by keeping their state of nutrition perpetually at the highest point.

All animals, no matter whether viviparous or oviparous, have a desquamation time. This time, if you have noticed it, follows the procreative season. In our first type, the deer, it comes in the early spring, after the "rut" is fairly over and after the necessity for protection of these dermal structures has passed. The deer sheds his antlers at the same time he sheds his hair. This law holds good in warm-blooded animals, whether in the wild or domestic state: that at least once in a year all the dermal structures are renewed: and this renewal generally occurs in the spring, for the reason that the light coat is necessary for the warm weather, and it gradually thickens as the cool weather of the next season approaches. But the point I wish you to mark especially is that this change is after the rutting season is over. In birds, where the rutting season begins in the spring, the principal part of the moult occurs in the autumn, again after the rutting season is over. Some birds, however, have two moults,

one in the very early spring before the breeding season begins, when they lose a few of the protecting feathers and in some cases grow most fantastic plumage, which is really a part of the sexual ornament and plays quite a rôle in sexual selection. Darwin has borne down on this point very firmly and uses it as one of the foundation stones in his classical work on sexual selection. It will pay any of you to read it carefully, as he there shows that many birds get then a special nuptial dress and that there are very many queer freaks brought on for this particular purpose. One of the strangest features of it is that of the auk, which grows special parts of his bill to be worn only during the rutting season and which are shed the minute the nesting season is over. The general law for birds, though, is that the great moult of the year comes on in the autumn, which again, as with the deer, is at the close of the rutting season. After the fledglings are beginning to take care of themselves the parent birds begin to lose their feathers, and in a comparatively short time the new dress begins to show itself. The growth of feathers, however, takes a long while, so that it must be at a time when the creature has nothing else to do. But to all of you who have studied ornithology the moult is thoroughly familiar. The point, though, which I wish here to repeat is what I stated in my opening sentence—that menstruation is nothing but a shedding; that, as I have said so often before, it is a getting rid of over-ripe material, which is placed there for a special purpose and must be gotten rid of to give room for newer and stronger material. In studying menstruation in the human being we must remember that it is the only animal in the world in which the “rut” is omnipresent. Yet the endometrium in the woman is different even from that in the monkey, in the sense that it must always be kept ready to receive the ovum. The monkey, according to the best authorities we have, generally has but one breeding season, though some of them, it is said, have two, in a year. Their usual time is in the autumn, in those where the period of incubation is longest; but some, where it is shorter, have a sort of secondary time in the spring. The consequence is that the endometrium does not have to be kept up to the same protoplasmic richness in the monkey that it does in the human being. Now, I believe the difference between these animals is altogether due to the artificial state, or rather, I should put it, a higher grade of development, in the human being, by which the state

of nutrition is kept at the highest point all the time. The reason for this is that, with our brain to lead us, the climate makes absolutely no difference to us, because through all the cycles of years through which man has been evolved we have now gotten to a point when there is never any variation in our food, and climatic condition never influences us to the extent it does the lower animals. So that our nervous system and blood supply is always at the top notch; and the consequence is, the human female is the only one in the world which is always ready for copulation. Being thus always ready, her endometrium has to be kept, as I have already indicated, in a higher state of development than that of any other animal; and to keep it in this best of conditions the shedding of its over-ripe material must be done more often, and this is all menstruation means. In the deer the general shedding takes place, as I have told you, once a year and always after the period is past. In birds it also occurs once a year and after the period is past. One other class, our domestic animals, I have thus far intentionally omitted. You will naturally ask, where does the shedding occur in them? My reply is found in a paper which I wrote in 1887 for the British Gynecological Association. You will find it on page 379 of the *British Gynecological Journal* for 1887. In it I make a systematic study of the cycle of the "rut" in the dog. It was extremely interesting to watch the gradual growth of the protoplasm in the endometrium of the dog as the "rut" approached; how the large masses of rich corpuscular development were formed in time to meet the ripening ova. But the point that I wish now especially to speak of is the way in which Nature gets rid of that material when conception is missed. It is by the route of the lymphatics. These corpuscles undergo a granular degeneration and are reabsorbed and swept away in the general lymphatic stream and used up in the economy. This process is the same with all horizontal animals. The method in erect animals I have heretofore fully described. So that when an animal becomes domesticated the first changes are that his food comes regularly and that his nervous system is always in good condition. He is prepared in this way for more frequent "rut" than in the wild state. But the changes necessary in the endometrium for the reception of the egg are such that there must be a longer or shorter interval to allow for the changes in the endometrium. So that the endometrial shedding in these animals is accom-

plished through the lymphatics instead of being cast off to the outside. As yet there have been but two well-written papers on menstruation in monkeys. The first was by Mr. Bland Sutton, before the British Gynecological Society, in June, 1886; with this many of you are familiar. The other is by Mr. Walter Heape, M.A., Balfour student of the University, Cam-

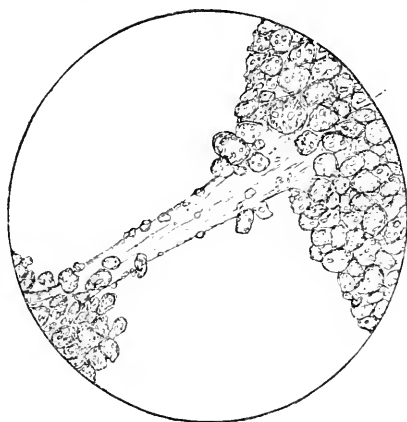


FIG. 1.—Fibre of endometrium, showing protoplasmic growth from granules. 3,000 diameters. (Johnstone.)

bridge, published in the *Philosophical Transactions* of the Royal Society of London, Form B. 101, 1894. It is the most important paper that has yet been written on the subject. In it he says that the *Semnopithecus Entellus* menstruates fairly regularly, at least five or six times a year. He produces one of the strongest arguments for the separation of ovulation

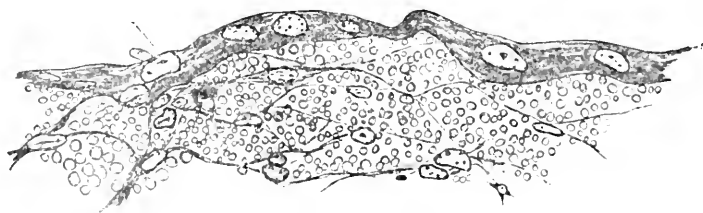


FIG. 2.—Regeneration of epithelium at close of menstruation. (Heape.)

and menstruation in the fact that though these animals menstruate five or six times a year, and sometimes oftener, they have but two breeding seasons. The only criticism I have to offer on this paper is that he has not examined the monkey during the rutting season. His description of the endometrium is an exact reproduction of what I found in the little girl who

was just beginning to menstruate, and again found reproduced in the dog in the half-way interval of the rut. He regards it as an undifferentiated tissue, which is lying there ready for sudden call of Nature and capable of making immense amounts of protoplasm on short notice. Had he studied it at the time when the uterus must receive the impregnated ovum, I am sure he would have found the protoplasm far more rich. His description, though, of the shedding of the epithelium coincides exactly and is far better presented than in my original paper on the menstrual organ. I think the ground of the only difference between us about the method of the production of the protoplasm is to be found in the fact he did not see this structure when it must be in the most rapid state of development. One of the greatest stumbling blocks to the acceptance of my ideas of menstruation has been Remak's law. Nine years ago, in the menstrual-organ



FIG. 3.

FIG. 3.—Completed epithelium of endometrium, showing protoplasmic connection with subjacent endometrium. (Heape.)

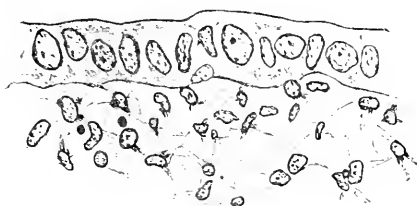


FIG. 4.

FIG. 4.—Same as Fig. 3, lower power and older epithelium. (Heape.)

paper, I stated positively that the epithelium lining the endometrium was reproduced directly from the tissue underneath it, and that it does not always grow from epithelium, as we had been taught heretofore to believe was always the case. Mr. Heape has given us a beautiful demonstration of this fact and one that no man can gainsay. I have herewith reproduced several of his drawings, from which you may see for yourselves just what the connection between the epithelium and the tissue underneath is. Now, that you may understand fully what my idea of shedding is, I will have to turn to an entirely different subject. Twenty years ago, when I was a medical student, the idea first came into my head that Remak's law, reduced to its logical result, was an absurdity; that the separation of the epiblast and the hypoblast, and their continued separation through life, meant a dual existence; and that there were two separate

and distinct entities living side by side in the same body throughout life, which undoubtedly is a *reductio ad absurdum*. I undertook some original studies in the winter of 1876-77 to find out how the lymphatic corpuscle is manufactured, and I herewith produce an enlarged drawing of the one that accompanied my first publication on the subject (Fig. 1). It is very difficult work to trace out this connection, as you all know how proverbially hard the immersion lens is to handle. After a winter's work I succeeded in establishing beyond a doubt that the granules in the threads of this reticular tissue gradually grow to full-grown corpuscles, separate from the threads, and float away in the lymph. For two winters subsequent to this I worked on the same subject with reference to the epithelium, but the idea of

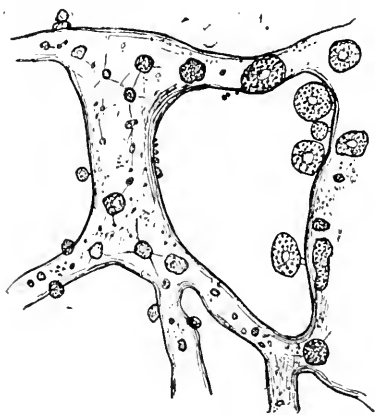


FIG. 5.

FIG. 5.—Fibres of lymphatic gland of a cat, 1,300 diameters, showing growth of protoplasm from granule. (Johnstone.)

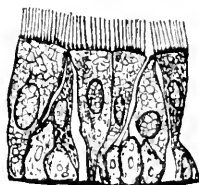


FIG. 6.

FIG. 6.—Ciliated epithelium of intestine, showing connection of young cells with hyaline layer.

karyokinesis so fully dominated my thoughts that I did not get anything at all satisfactory, though at that time I made a drawing, and still have it in an old sketch book, showing that the hyaline layer is sometimes extremely granular and that there are all forms of gradations, from the little granule up to a young epithelial cell, protruding from it into the rete Malpighii. This I first saw in an ordinary section of skin; afterward I saw it in the frog of a colt's foot, afterward in the matrix of the nail; but the idea of cell division still so strongly possessed me that I was not satisfied with it and never got the correct idea of how epithelium is reproduced in the adult state until along in the year 1886-87, when, by studying feather development, I found that

there was no doubt about it and that the little granules in the hyaline layer gradually grow and protrude into the rete Malpighii until the full-grown epithelial cell of the deep layer is made; the only difference between the epithelial and connective tissue being that at a certain point the undifferentiated protoplasm begins to secrete glue, and this marks the line between sustentacular and protective tissue. That you may see for yourselves what all this means, a friend of mine, Mr. Walter Berry, a graduate of the Worcester, Mass., Technical School, has made me two drawings: one of the feather papilla in the quiet state, and *that* is when the plumage is full grown; and the other in the moulting condition, when the young feather is just beginning to peep through the skin. In the first you can see that the

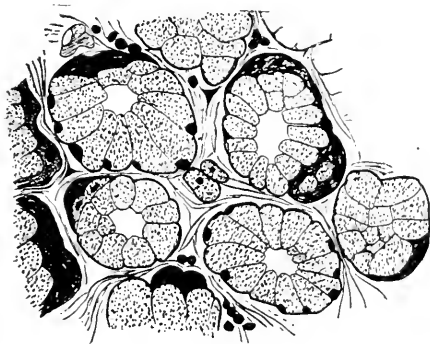


FIG. 7.

FIG. 7.—Salivary gland, showing connection of young cells with hyaline layer.

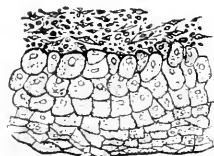


FIG. 8.

FIG. 8.—Skin of chin, showing hyaline layer, richly protoplasmic, with deepest cells of rete Malpighii growing directly from it. (Johnstone.)

feather papilla is our old friend, ordinary mucous tissue, with large nuclei and branching corpuscles running in every direction around them. The feather papilla, as you see, contains quite a number of blood vessels even in this quiet state, because there is so much of the tissue that transudation is not sufficient to nourish it and a better source of supply must be had. The result is these numerous capillaries shown. In the active state, though, where plenty of rich protoplasm is necessary, you will find every function intensified, the granules in these threads are enlarged and are growing, until you find the whole lower part of the papilla nothing but a mass of protoplasm divided up into corpuscles, so as to resemble very closely the lymphatic gland. Higher up, the black lines that you see are the finished epithelial

columns which build up the feather. Now, if you will notice the gradations from the beginning, at the bottom of the feather, up to the columns, you will find the gradual gradations of the neutral protoplasmic corpuscles into the full-grown epithelial cells. And here, I believe, is the law of the supply of waste of all epithelial tissues in adult life. Besides these feathers I have had here various forms of epithelium drawn. Some of these glands I have had copied from Quain's latest edition, which is

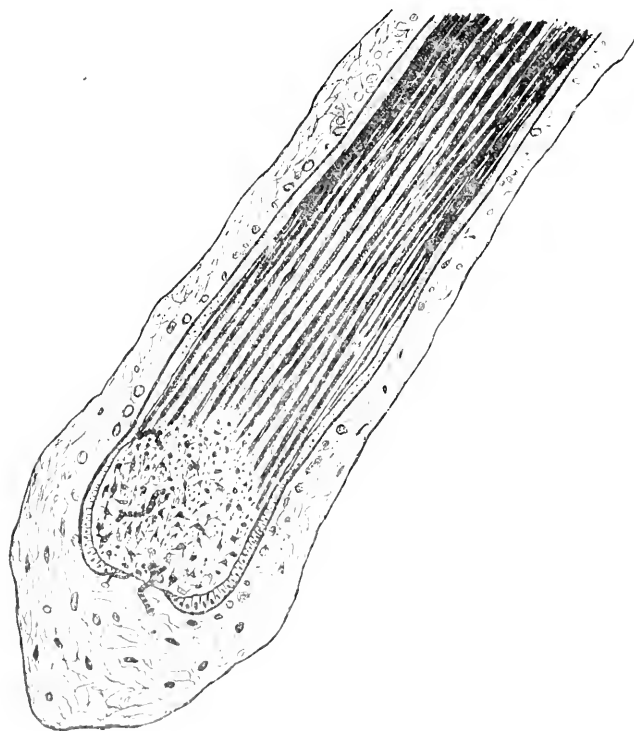


Fig. 9. Full-grown feather, showing papilla composed of mucous tissue (inactive state). (Johnstone.)

not yet complete, showing the young cells, which undoubtedly bud off from the sustentacular hyaline layer surrounding each gland. Also, in this group of ciliated epithelium you will find, down next to the hyaline layer, the young cells just growing away from the hyaline layer. So then my belief is, we must have a complete reconstruction of our ideas of the reproduction of epithelium in adult life, because the conditions of adult life are very different indeed from those of the embryo.

In the embryo everything must be made rapidly. New organs must be constructed, old ones die away equally as fast, and in the rapid changes in the progression of development from the metazoic age on up to the highest development of animals, time is a great desideratum and it would be impossible to wait for the growth of the cell from a little granule. The consequence is, karyokinesis is the process used in cell production in the em-

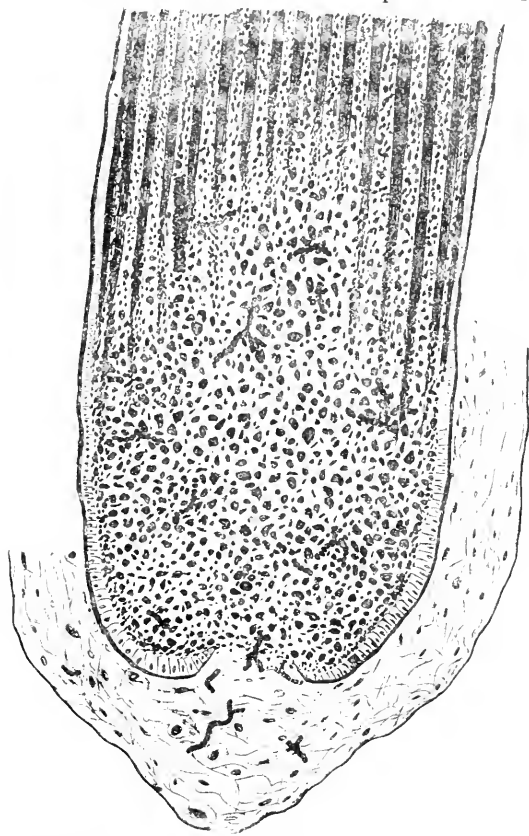


FIG. 10.—Rapidly growing feather, showing papilla composed of protoplasmic tissue (active state). (Johnstone.).

bryonic condition; but in adult life this heretofore overlooked method of cell production from the granule to the full-grown cell is a source of supply for the waste of tissues by the wear and tear of every-day life. Do not understand me to decry embryology and its teachings. Do not think I have any quarrel with Remak's law, for at the time it was formulated our ideas as to the condition of the tissues of the body were in a perfectly

chaotic state and some such formula as this was necessary to hold back too exuberant ideas and to tie down students until the origin of every organ and every tissue was thoroughly understood. Now, however, that work is accomplished; and, like the scaffolding around the wall which masons have just completed, it must come down and give way to the decorators, for really as long as Remak's law stands the future progress as to the source of supply of the waste of the body must be at a standstill. We must begin to study embryology more in the light of future uses than in that of each present condition, as has heretofore been done. The fact that the mesoblast is made up both from the hypoblast and the epiblast is one that this law takes no cognizance of; and that even the hypoblast undoubtedly makes epithelial tissue, [as well as that this secondary organ, the mesoblast, makes both whenever it is necessary, is a point that enough attention has not heretofore been paid to. The scheme that I would propose in its place—for I think that an iconoclast is the most pestiferous animal that has ever yet been evolved, and that no man has a right to destroy a theory until he has a better one to put in its place—the one that I would have to supplant it is that there are three great functions which these three membranes carry throughout life. The first, the epiblast, is the *ego*, if you will allow it, or the one that makes the sensory apparatus. It is the one that has to receive impressions, which has to reason upon them and issue orders. In order to accomplish this the epiblast must enter very largely into the composition of the skin; for very few of us realize how much of a brain the skin really is, for next to the eye it is the one that gives us the most impressions that we receive during the day, and the consequence is that the epiblast must have an all-controlling power in its manufacture. For the millions of touch-corpuscles and nerves which it contains could not readily be made in any other way. So then the epiblast, if you will allow the simile of an army, is the general and secretary of the war department, to whom all information must come and from whom all orders are issued. The mesoblast, though, forms the fighting corps, the muscles, the bones, and everything that goes to make the locomotive apparatus, as well as the sanitary police. Because, assisted by a slight adjunct from the epiblast, the mesoblast makes all the muscles, bones, connective tissue, as well as the generative and the renal and other excretory organs. It then is

justly called the army proper, whereas the hypoblast simply deals with the food that is supplied to it, and, in other words, it is nothing but the commissary department. And I believe, in the future, if we would keep the functions of these three great subdivisions in view all the time, that we would have a far clearer understanding of what these three membranes mean, and how that it is possible from this original trinity to form one great whole; and it makes a far more beautiful idea than the old hide-bound one, which must result in a dual existence. But, to pursue the idea further, my belief is that the reticular tissue, found everywhere all over the body, has the function given it to produce protoplasm, and that this protoplasm in turn makes whatever tissue may be needed. It may make epithelium or it may make bone wherever it is necessary; and one of the greatest illustrations of this is that, after shedding, it manufactures a new set of antlers for the whole stag tribe once every year, thus showing that the procreation of the race very largely devolves upon it, for it manufactures not only the organs with which impregnation is accomplished, but it goes further and makes the organs of sexual attraction, and in this way has an immense deal to do with the keeping up of the race. As I said in a paper before the British Medical Association in 1889, where I read on the subject of "The Sexual Ornaments," "that from the horn of the stag to the beard of the Aryan, the sexual ornaments are only a kindred process to the manufacture of the endometrium." So then my beliefs are, to sum it all up in a few words, that the hyaline layer with its various modifications is the matrix of all epithelial tissues, and that from it spring all the varied sexual ornaments; that the feather papilla, the hair papilla, the endometrium, are nothing but local hypertrophies of this same structure for specific purposes, and that it is only by the wearing-out of this structure that extreme old age is allowed to appear.

The one great pathological doctrine to draw from all this is that we have at last a key to what cirrhosis really is, for with the hyaline layer, with all its reduplications in the capsules of secreting organs, we can easily see how that by a slight irritation, if the neutral protoplasm which was intended to form secreting cells should take the other turn and form connective tissue, we at once know how cirrhosis starts.

In closing this paper let me once more express the gratification of the honor you have conferred upon me and the pleasure

it gives me to lay before you the results of something like twenty years of work. I have been led along roads that were not of my own planning, and, as it were, stumbled upon these conclusions along the most unexpected routes. As you may see, though many months of my life have been spent in laboratories, the greater portion of it has been spent at the bedside, in the ward, and in the study of Nature in its own wild haunts; so that after all I am more than ever convinced that the only way to study any subject thoroughly is not to do it in the laboratory alone, and not to work it from the artificial sources which civilization has forced upon us, but, like the bacteriologists, go back to original sources and watch it in its growth and development through all its varied changes up to its mature state. Then, and only then, have you the complete picture of any tissue, structure, or being.

MADISONVILLE ROAD.

SUPPURATIVE LESIONS OF THE FALLOPIAN TUBE AND OVARY.¹

WITH DEMONSTRATION OF SPECIMENS.

BY

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(With sixteen illustrations.)

SUPPURATION is the one of the varieties of exudative inflammation, so-called from the fact that, as a result of the inflammatory process, new material, exudate, is formed in the tissues. This exudate may be mucus, serum, fibrin, or pus. The character of the exudates gives the name to the variety of the inflammation. Thus we may have a mucous, serous, fibrinous, or purulent inflammation. Either variety may exist by itself, but generally they are found in combination.

Suppurative or purulent inflammation is in the majority of cases caused by the presence of certain forms of bacteria in the tissues. They or their products produce an active emigration of the white blood cells and a proliferation of the tissue cells. Many of these cells, dying, become the pus cells. When the

¹ Read before New York Obstetrical Society, April 2d, 1895.

inflammatory process is intense it may cause a breaking-down of the tissue, a large accumulation of pus cells and fluid, and as a result of this an abscess is formed.

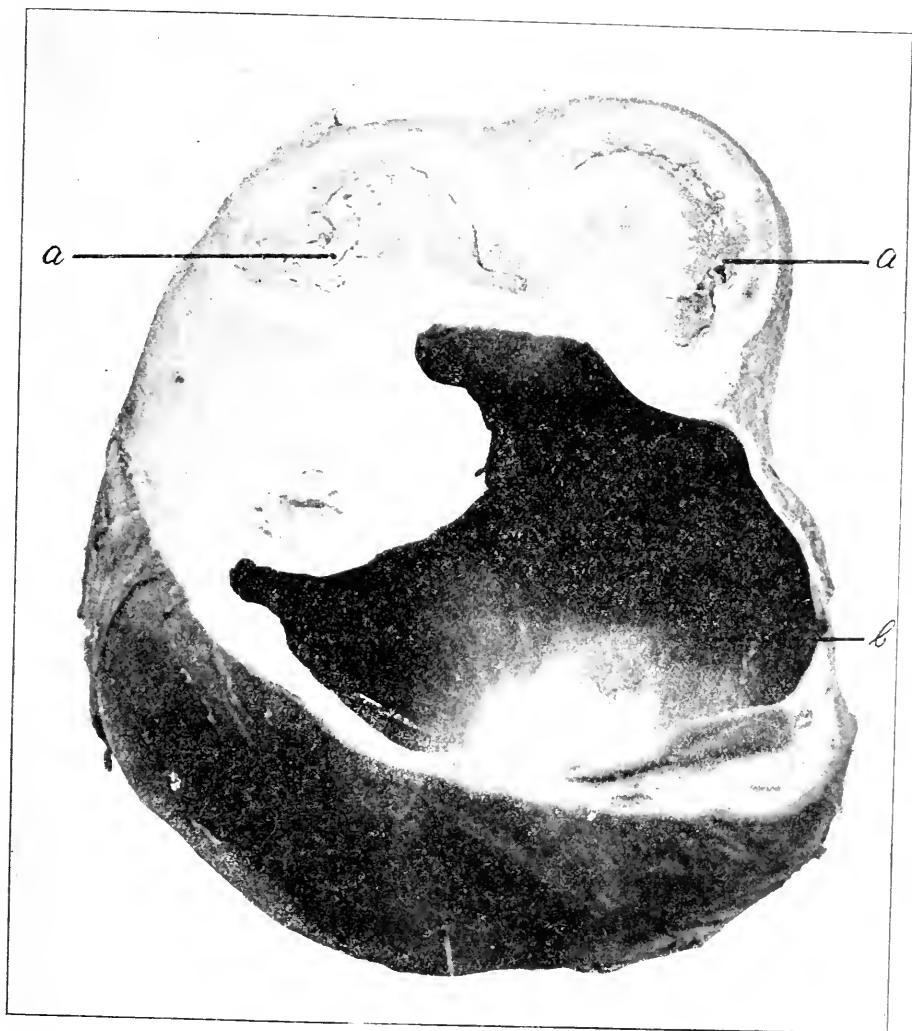


FIG. 1.—Suppurating salpingitis, non-suppurating cyst of the ovary. *a*, section of the tube; *b*, cavity of the cyst of the ovary.

With this brief review of suppurative inflammation we will now consider the forms it is met with in the Fallopian tube.

Suppurative inflammation in the tube occurs as salpingitis and pyosalpinx. Suppurative salpingitis is at first confined to the

mucous membrane of the tube, and is preceded by one of the other varieties of exudative inflammation. The normal ciliated, cylindrical epithelia covering its free surface lose their cilia and become changed into cuboidal or flat cells. The folds of



FIG. 2.—Suppurating salpingitis, pyosalpinx, suppurating cyst of the ovary. Sections through various portions of the tube. *a*, transverse section through the tube at the uterine end, showing a suppurating salpingitis; *b*, *c*, sections nearer the fimbriated end; *d*, section through the cyst of the ovary; *e*, section through the pyosalpinx. The tube is adherent to the surface of the ovary, its fimbriated end, *f*, being, occluded and rounded off.

the mucous membrane become elongated and thickened, their stroma infiltrated with small round cells, and the blood vessels dilated. The lumen of the tube is but slightly if at all dilated and contains a creamy pus. As the inflammatory process proceeds the epithelium on the surface of the mucous membrane

becomes entirely destroyed, its folds become united, and finally it becomes converted into a layer of granulation tissue. In favorable cases the inflammatory process may subside at this stage, the pus in the tube disappears and the granulation tissue becomes organized, and we have as a result a chronic salpingitis.

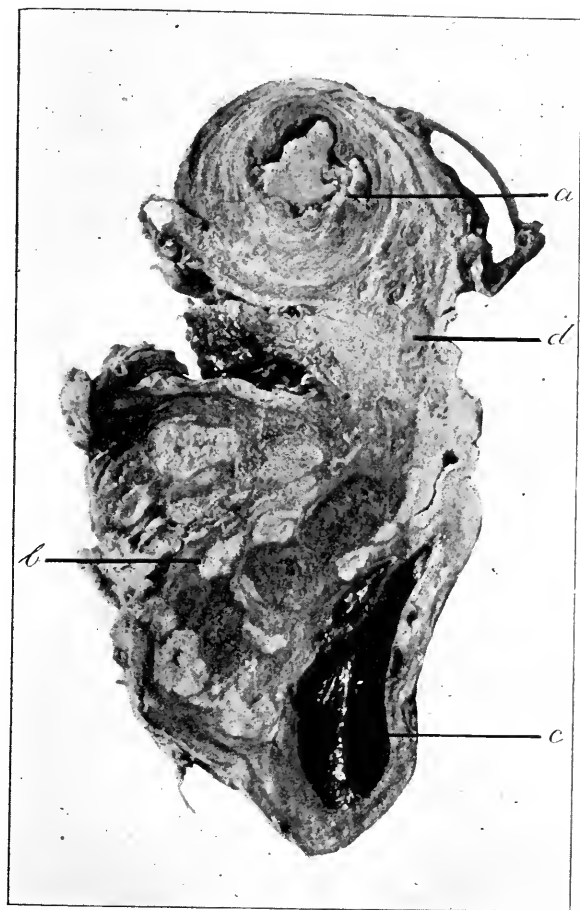


FIG. 3.—Pyosalpinx, early stage. Section through tube and ovary. *a*, transverse section of tube, showing dilated lumen filled with pus; *b*, ovary with numerous corpora fibrosa; *c*, follicular cysts of the ovary; *d*, thickened mesosalpinx.

While this favorable termination occurs in a certain percentage of cases, in a large number the inflammatory process extends. At first it involves the wall of the tube, producing an interstitial

salpingitis. The wall of the tube becomes very much thickened and the tube itself enlarged. Its walls are infiltrated with pus, and there may be a large increase of connective tissue, which in many cases is edematous. If the inflammation progresses it extends to the peritoneal covering of the tube, producing a perisalpingitis, which in turn may extend to the tissues of the pelvic

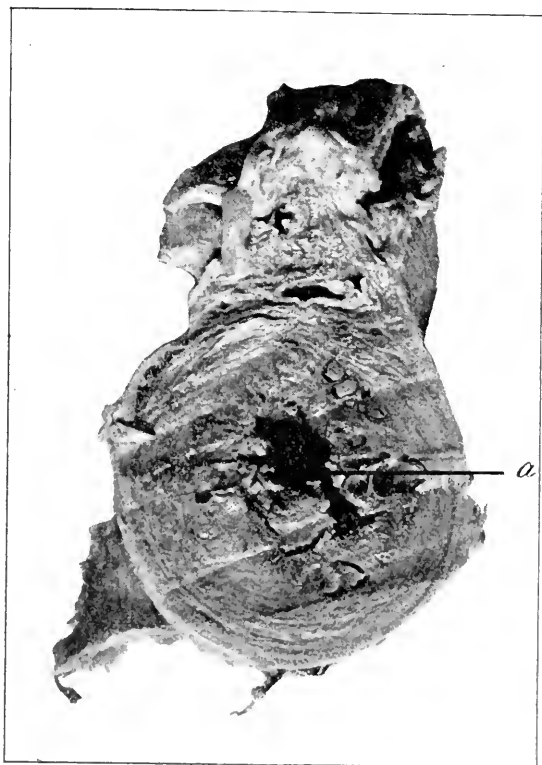


FIG. 4.—Pyosalpinx. Transverse section through the tube. *a*, lumen of the tube, filled with pus

cavity, causing pelvic inflammation with the formation of adhesions and suppurating foci external to the tube.

As a result of this general inflammation of the tube it becomes enlarged and tortuous, the degree of enlargement and twisting depending upon the intensity and the duration of the inflammatory process. In recent cases the tube is but moderately enlarged; in advanced cases it becomes enormously enlarged, its

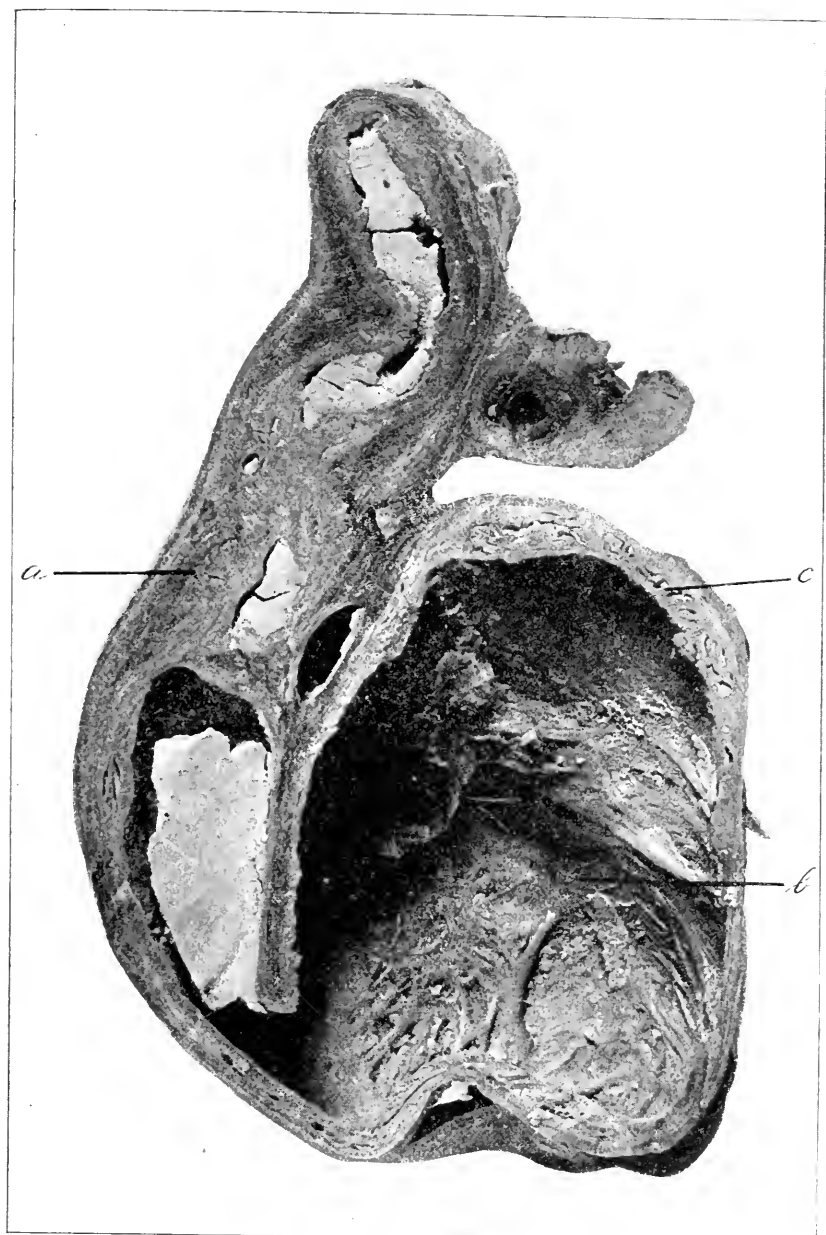


FIG. 5.—Pyosalpinx. Longitudinal section through the tube. *a*, tube with thickened walls and dilated lumen filled with pus; *b*, cavity of the cystic portion of the tube; *c*, remains of the mucous membrane. The external third of the tube is dilated into an oval shaped cyst measuring $4\frac{1}{2}$ by 5 centimetres; its walls are thin and are composed almost entirely of fibrous tissue.

walls thickened, and it becomes twisted into all manner of shapes. The peritubal inflammation is so great that the adhesions and new-formed tissue almost completely obliterate its outlines. The fimbriæ, being extensions of the mucous membrane of the tube, are involved in the inflammatory process at an early stage. They become agglutinated by the exudate, which organ-

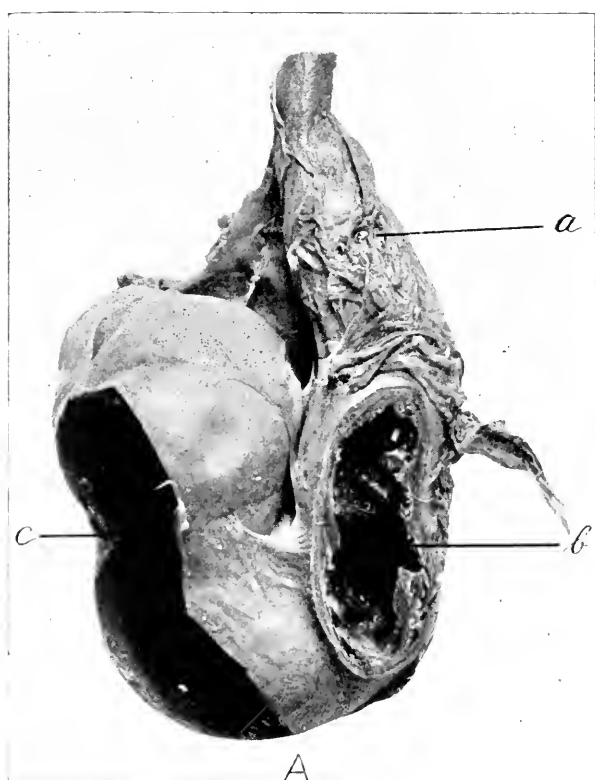


FIG. 6a.—Bilateral pyosalpinx. A, left tube: *a*, uterine end of the tube, covered with adhesions; *b*, longitudinal section of the tube at its middle portion, showing its lumen dilated and its walls thinned; *c*, cyst of the fimbriated end of the tube. The left tube, A, is dilated into an irregular-shaped cyst measuring $5\frac{1}{2}$ by 4 centimetres.

izes and binds them to adjacent organs and finally closes the abdominal ostium, which in time becomes rounded off.

Pyosalpinx is the sequel of a suppurating salpingitis. After the closure of the abdominal ostium, if the inflammatory process progresses, there is an accumulation of pus in the lumen of the

tube. The swelling of the mucous membrane at the uterine end or the complete obliteration of the tube at this point prevents the evacuation of the pus in this direction; the abdominal end being closed, escape is also cut off at this end. The pus accumulating in this now closed sac causes a distention of the tube. This distention generally takes place more rapidly at the outer portion of the tube, so that in the early stages of the lesion it assumes a club shape and in the later stages a pear shape. At

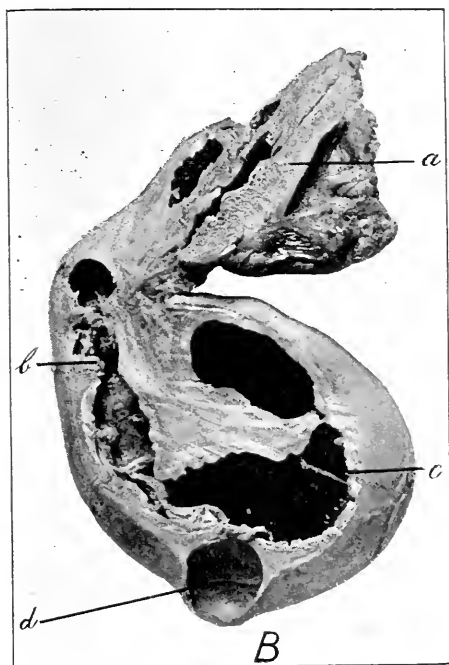


FIG. 6b. —Bilateral pyosalpinx. B, right tube: *a*, longitudinal section of the uterine end of the tube; *b*, longitudinal section of the middle portion; *c*, section of the dilated fimbriated end; *d*, small cyst on the surface. The right tube, B, is an irregular pear-shaped cyst measuring 11 by 4 centimetres.

times this distention may be uniform throughout the entire length of the tube, when the resulting cyst assumes an elongated cylindrical shape, which may become more or less curved and in advanced cases very tortuous.

The walls of the tube, as a result of this distention, become thinned, and the mucous membrane is replaced by a layer of granulation tissue.

In many cases, however, the perisalpingitis keeps pace with, or even advances more rapidly than, that within the cyst. In such cases the cyst wall becomes very much thickened and firmly adherent to the walls or organs of the pelvic cavity.

Suppurative inflammation of the ovary may occur either as an acute or chronic process ending in the formation of abscesses, or as a suppurative process in pre-existing cysts. The acute process is almost always associated with the puerperal state;

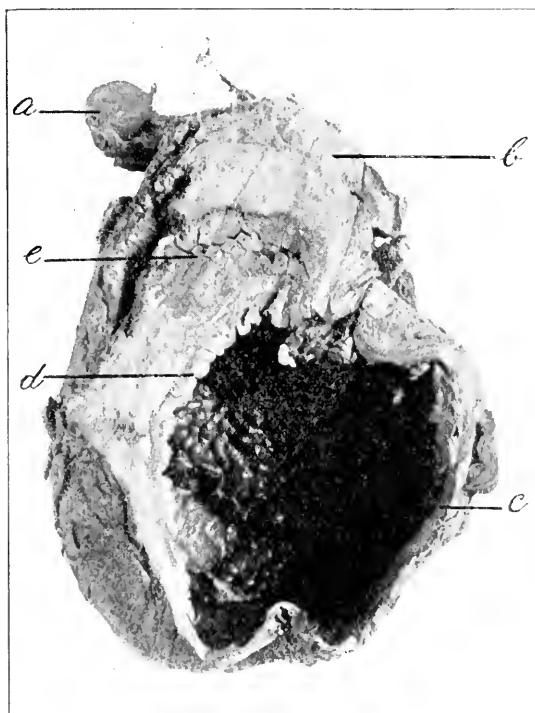


FIG. 7.—Suppurating salpingitis, suppurating cyst of the ovary. *a*, transverse section of the tube; *b*, longitudinal section of the portion of the tube attached to the ovary; *c*, cavity of the cyst of the ovary; *d*, granulation tissue lining the cyst; *e*, section through the granulation tissue lining a pocket in the cyst. The cyst measures 16 centimetres in circumference, its walls are composed almost entirely of fibrous tissue, and it is lined internally with a layer of granulation tissue from 3 to 4 millimetres in thickness.

unconnected with this condition it is exceedingly rare. The chronic form is the more common and is almost always the result of the extension of a similar process already existing in the Fallopian tube. In the early stages of the lesion the stroma

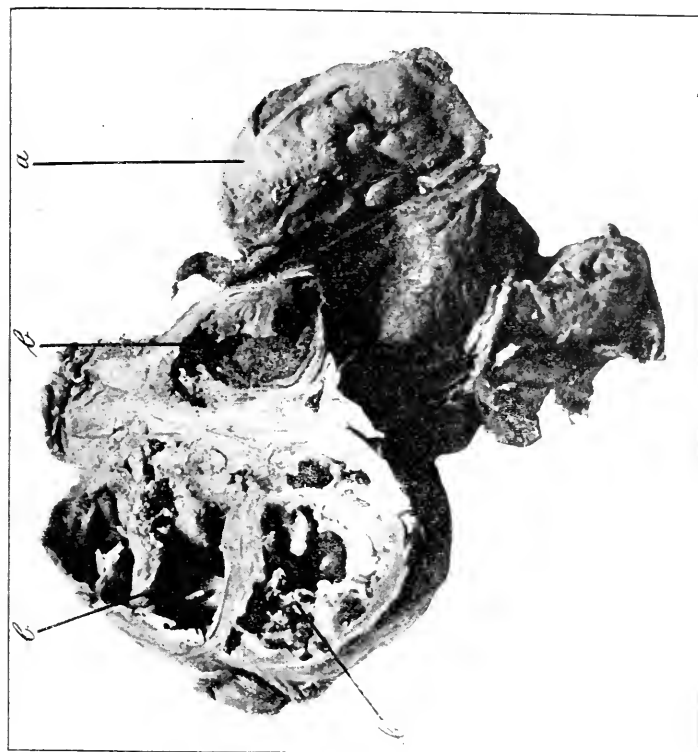


FIG. 9.—Suppurating salpingitis, abscesses of the ovary. *a*, Fallopian tube; *b*, abscesses of the ovary.

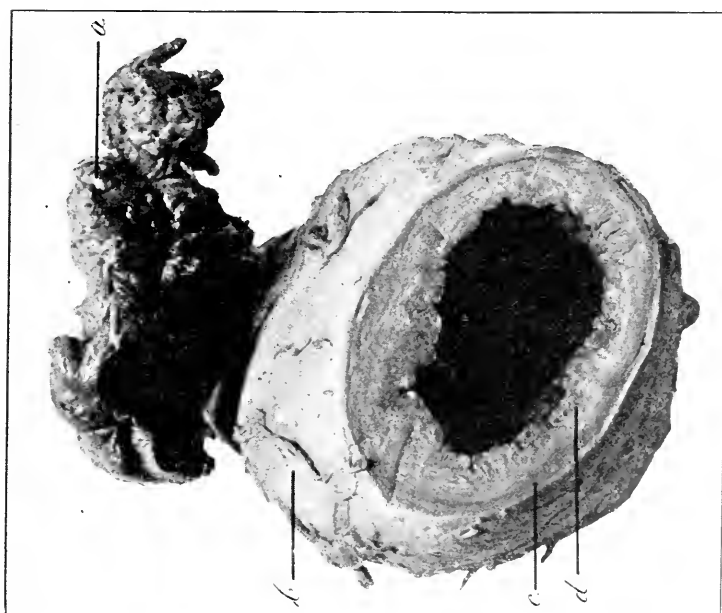


FIG. 8.—Suppurating salpingitis, suppurating cyst of the ovary. *a*, enlarged and tortuous tube, its surface covered with adhesions; *b*, external surface of the cyst of the ovary; *c*, wall of the cyst; *d*, lining membrane of granulation tissue. This cyst has moderately thick walls. It is of an oval shape, measuring $5\frac{1}{2}$ by 2 centimetres. It is lined with a thick layer of granulation tissue which is thrown up into numerous folds.

of the organ is edematous and infiltrated with small round cells; in the later stages abscesses are formed by the breaking-down of the tissue. This form of abscess is, as a rule, rather uncom-

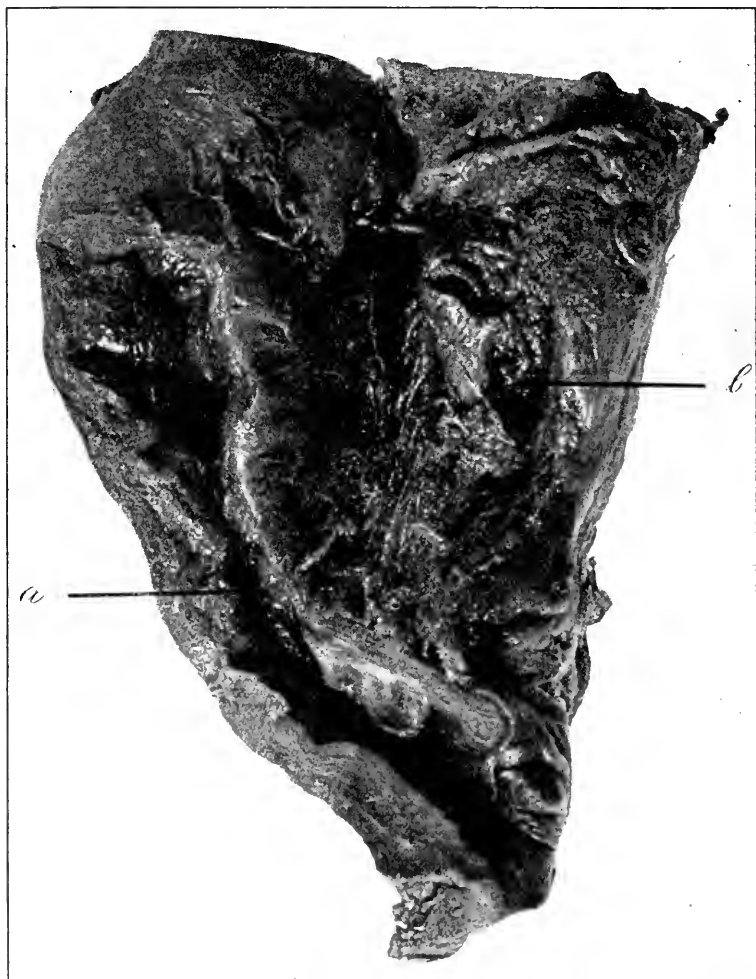


FIG. 10.—Pyosalpinx. *a*, longitudinal section of the tube; *b*, external surface of a portion of a suppurating cyst of the ovary.

mon, the collections of pus usually found being the result of a suppurative process set up in the wall of a cyst.

The term abscess of the ovary is almost universally applied to any collection of pus found in this organ. In our experience true abscess—a collection of pus due to the breaking-down of

the tissue—of this organ is exceedingly rare, while suppurating cysts are quite common. We would therefore suggest that the term abscess be only applied to the former lesion and not to the collections of pus found in pre-existing cysts.

Suppurating cysts of the ovary are due to a purulent inflammation of the cyst wall. This inflammation may cause small

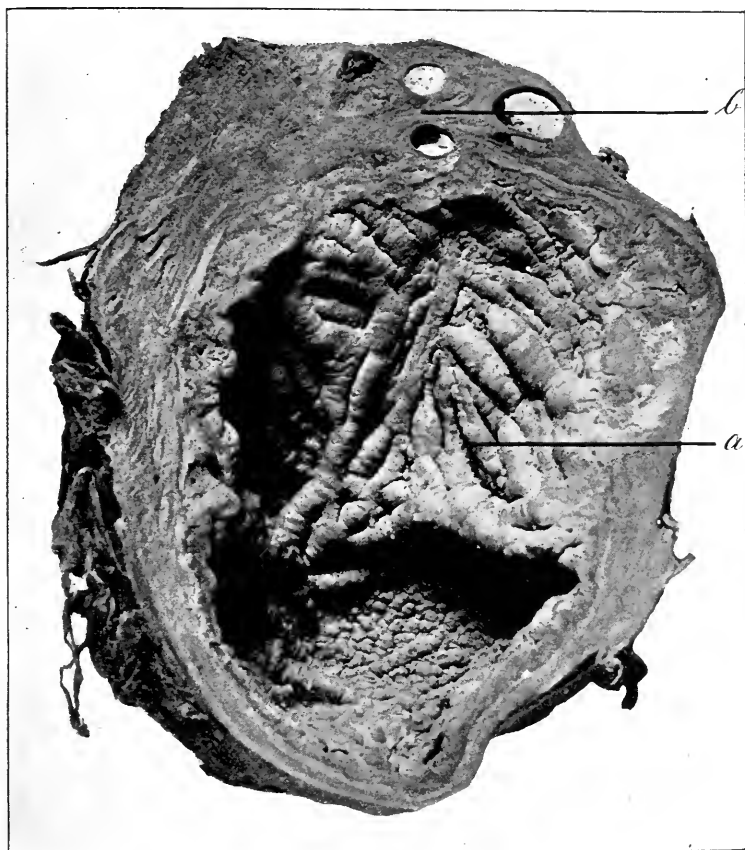


FIG. 11.—Suppurating cyst of the ovary. *a*, cavity of the cyst, showing the convolution of the lining membrane of granulation tissue.

abscesses in the wall, and as the process progresses the epithelium lining the cavity of the cyst is destroyed, pus becomes mingled with the fluid contents, and finally the interior of the cyst becomes lined with a layer of granulation tissue and its cavity filled with pus.

In some cases of suppurating salpingitis or pyosalpinx the

tube becomes adherent to the surface of the cyst of the ovary, and a communication between the lumen of the tube and cavity of the cyst is formed, a tubo-ovarian cyst being the result, and, the suppurating process extending to the wall of the cyst, its contents are converted into pus.



FIG 12.—Suppurating tubo-ovarian cyst. A, transverse sections through the tube, the cyst wall having been dissected away; *a*, lumen of the tube; *b*, opening between the lumen of the tube and the cavity of the tube. B, similar specimen to A. The cyst of the ovary in this case was about the size of an orange. The tube was enlarged, its lumen dilated and filled with pus. It was firmly attached to the surface of the cyst, its fimbriated end being lost in the wall. Section through the tube and cyst wall showed a papillary projection from the inner surface of the cyst at a point corresponding to about the middle third of the tube. Upon cutting through this papillary mass it was found to surround an opening between the ovary and tube. Microscopic examination showed this papillary mass to be the bulging mucous membrane of the tube.

Suppurative tubercular pyosalpinx or ovaritis may occur either

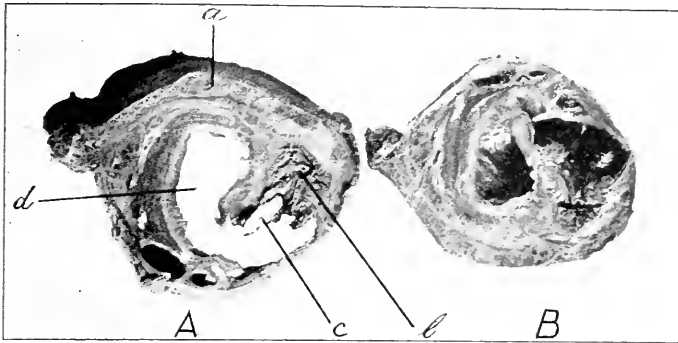


FIG. 13.—Suppurating tubo-ovarian cyst. A. section showing opening of the fimbriated end of the tube into the cavity of the cyst: *a*, longitudinal section of the tube; *b*, fimbriated end of the tube; *c*, end of a catheter passed through the abdominal ostium of the tube and projecting into the cavity of the cyst. B. section from the end of the cyst. This specimen consists of the ovary and tube matted together into an oval-shaped mass measuring 5 by 4 centimetres. Section shows an oval-shaped cyst of the ovary, 21 by 32 millimetres. The tube is firmly attached to the surface of the cyst, and its fimbriated end projects into the cavity of the latter.

single or in combination. In our experience they have been

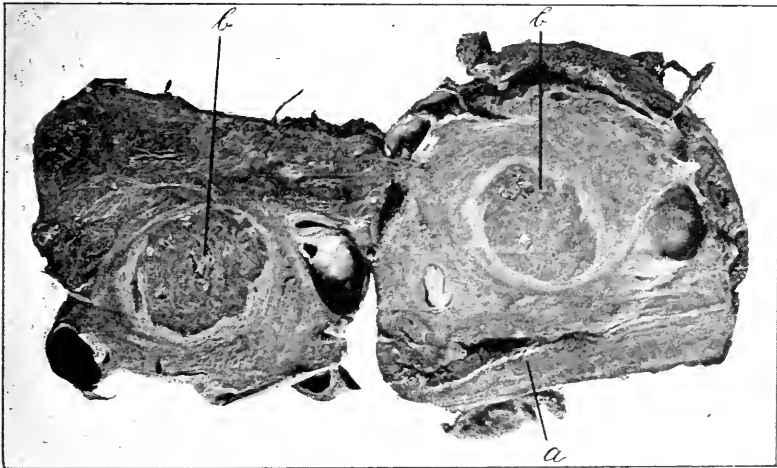


FIG. 14.—Suppurating tubercular salpingitis and ovaritis. Section through the ovary and tube. *a*, longitudinal section of the tube; *b*, suppurating tubercular foci in the ovary. The tube and ovary in this specimen are matted together into an irregular-shaped mass measuring $6\frac{1}{2}$ by $5\frac{1}{2}$ by 7 centimetres. The surface is rough and slightly nodular. Section shows the tube enlarged, its lumen slightly dilated. Section of the ovary measures 5 by 4 centimetres; its central portion contains an oval-shaped mass, white in color, and measuring 3 by 2 centimetres. Microscopic examination shows the ovary and tube infiltrated with tubercular tissue.

found always associated with each other. The macroscopic appearance of these lesions resembles very closely an ordinary suppurative inflammation of these organs, and often its true nature is only revealed by microscopic examination. There is a tendency for this form of inflammation to extend rapidly to the surrounding organs and tissues of the pelvic cavity, and also to those of the abdominal cavity.

In the early stages of the suppurative inflammation of the ovaries and tubes the presence of bacteria can be demonstrated

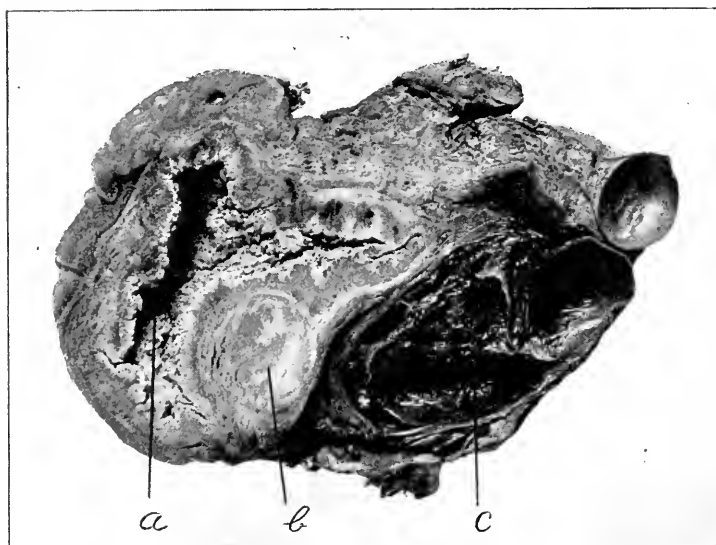


FIG. 15.—Tubercular pyosalpinx. *a*, lumen of the tube; *b*, tubercular mass in the mesosalpinx; *c*, cystic ovary.

by the culture methods and microscopic examination. After the process has continued for some length of time the pus becomes sterile. The gonococcus of Neisser and the pyogenic germs are the ones most commonly found, and in cases of tubercular lesions the bacillus of tuberculosis.

With this brief review of the pathology of suppurating inflammation of the tube and ovary, we will ask your attention to a demonstration of examples of the various lesions, as shown in the illustrations.

CLINICAL NOTES.

I. LARGE MYOMA OF THE OVARIAN LIGAMENT.

II. COINCIDENT OVARIAN AND PAROVARIAN CYSTS.

III. REPORT OF A CESAREAN SECTION AND OF TWO SYMPHYSEOTOMIES.¹

BY

BARTON COOKE HIRST, M.D.,
Philadelphia, Pa.

(With six illustrations.)

I. LARGE MYOMA OF THE OVARIAN LIGAMENT.

A MYOMA in the broad ligament, independent of the womb, is one of the rarest of all pelvic tumors. Some well-known gynecologists have denied its existence, but in all recent works on gynecology the possibility of myomatous growths from the ovarian and round ligaments is admitted, though most of the authors evidently have not themselves seen the condition.¹

Coe quotes Doran's case of a tumor weighing sixteen pounds. Pozzi refers to the cases of Sänger, Freund, Tédénat, and Bilfinger. The last could find only thirteen broad-ligament myomata reported up to 1887.

The woman from whom I removed this specimen (Fig. 1) gave the following history: She had had a sore feeling in the abdomen as long as she could remember. Married ten years, never pregnant. Menstruation always regular, but very profuse until twelve months ago, when it became scanty and has so continued.

The specimen itself shows its true character unmistakably. It has a small pedicle springing from the posterior layer of the broad ligament, on the outer side of which is a normal ovary. The tube, somewhat lengthened but otherwise normal, is thrown in a loop above and around the pedicle, and the frimbriated extremity was tightly adherent to the bottom of the broad ligament, beneath the pedicle. This I removed separately. The

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, April 18th, 1895.

² Keating's and Coe's "System of Gynecology"; Winckel's "Diseases of Women"; "American Text Book of Gynecology"; Garrigues' "Gynecology"; Küstner's "Gynäkologie"; Martin's and Fehling's "Lehrbücher der Frauenkrankheiten."

whole length of a normal broad ligament, without any separation of its layers, intervened between the pedicle of the tumor and the uterus. The latter was normal in size, position, and appearance. The right broad ligament, tube, and ovary were perfectly normal and were not disturbed.

The tumor weighs three pounds, and measures fifteen inches

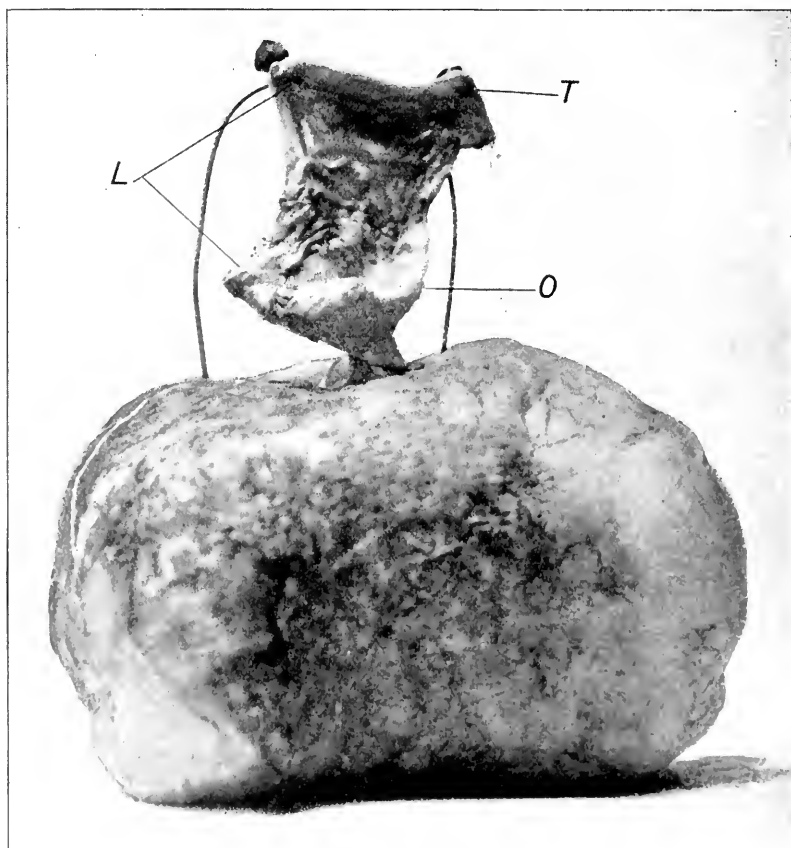


FIG. 1.—Myoma of the ovarian ligament.

in its smallest circumference. It has a few small cavities in its interior, containing fluid. A microscopic examination, kindly made for me by Dr Stengel, shows it to be a leiomyoma. On examining the pedicle closely it appears that an hypertrophied ovarian ligament runs from the ovary to the tumor and is lost in it.

II. COINCIDENT OVARIAN AND PAROVARIAN CYST.

The specimen (Fig. 2) was removed from an insane patient in the Philadelphia Hospital. The woman was one of a number upon whom I operated this winter at the request of Dr. Hughes. They all had some diseased condition of the pelvic organs, such as prolapse, rectocele, lacerated cervix, pelvic tumors, etc. Our object was first to relieve the women of physical suffering, and then to watch the effect upon their mental condition of the improvement in their physique. So far one woman has regained her reason. All of them recovered and were benefited physically.

In my experience combined ovarian and parovarian cysts are



FIG. 2.—Po, parovarian, and o, ovarian cyst.

rare; in fact, I do not recall another case. The ovarian cyst in this case was due to the abnormal distention of a Graafian follicle, and was monolocular.

III. REPORT OF A CESAREAN SECTION AND OF TWO SYMPHYSEOTOMIES.

The woman upon whom the Cesarean section was performed had been in labor twenty-four hours when I first saw her. The cord had prolapsed some four hours before, and about a foot of it was lying in and protruding from the vagina. The vessels were pulsating fairly well. The pelvis was rachitic, with a conjugate of less than seven and a half centimetres.¹ There was a

¹ Spinae ilii, 23 centimetres; cristae ilii, 23½ centimetres; external conjugate, 16½ centimetres; conjugata diagonalis, 9½ centimetres.

double promontory. The woman was a primipara with a narrow vagina. The child's head, on palpation, seemed large, and it rested above the pelvic brim, freely movable. On bimanual palpation it was evident that the head could not enter the pelvis. The case was plainly one for Cesarean section. Symphyseotomy was inadvisable on account of the prolapsed cord, the extreme contraction of the pelvis, and the narrow vagina. I had once before lost an opportunity to perform Cesarean section because, while I went to fetch my instruments, a prolapsed cord was fatally compressed between the child's head and the brim of the pelvis. To avoid a similar mishap in this case I had the patient placed in the Trendelenburg posture over the back of a chair in bed until I was ready to operate.

After extracting the child I amputated the womb above the cervix and dropped the stump. I have tried all the forms of Cesarean section, and I like this best. The woman and child have done perfectly well. The latter had an occipito-frontal circumference of thirty-five and a half centimetres. All the head measurements were a trifle above the normal. The weight was close to eight pounds. This operation makes for me a personal experience of ten Cesarean sections—six as operator four as principal assistant. I have been told that this is the largest experience in the operation possessed by anyone in America.

The first of the two symphyseotomies to be reported can be described to the best advantage in connection with another case requiring high forceps, for the two together illustrate very well, I think, the best modes of procedure in dealing with labor obstructed by a contracted pelvis. There were at the same time in the University Maternity a rachitic dwarf with a flat pelvis whose conjugate diameter measured about eight centimetres, and a woman with a generally contracted pelvis whose conjugate was nine and a half centimetres. They were both primiparae. With the former I anticipated serious difficulty. Labor, when it came on, was allowed to continue twenty-four hours. At the end of that time, in spite of strong pains, the head was still loose above the superior strait. The patient was prepared for a symphyseotomy, was anesthetized and placed upon the operating table. I then made an attempt, as I always do, to pull the head into the superior strait with axis-traction forceps, intending, if I failed, to cut the symphysis. Somewhat to my

surprise I succeeded with very little trouble, and delivered the woman, in a half-hour or so, of a living child that did well.

When the second woman fell in labor I apprehended very little trouble. She was allowed to have hard labor pains for twenty-four hours (being a primipara), and I then discovered that the head was still unengaged. She was anesthetized, and under ether I made a careful examination of the pelvis and of the head. The latter seemed to be of full size, but I believed it perfectly feasible to deliver with forceps. The attempt, however, failed completely, and after about a half-hour's work I gave it up for the time being. About six hours later I had the woman prepared for a symphyseotomy, etherized, and put upon the operating table. I made another attempt to deliver with forceps, failed again, cut the symphysis, again applied forceps, but, in spite of vigorous traction and as great a gaping of the symphysis as it was justifiable to allow, the head would not descend. Fearing some malformation in the child, I removed the forceps and made another careful examination, by which I discovered a cystic tumor on the back of the neck and behind the left ear, that had not been there before. I recognized, of course, a ruptured hydrocephalus, punctured the head, let out about a pint of fluid, and extracted the child without difficulty. I felt naturally chagrined that I had failed for the first time to diagnose hydrocephalus, and I made a careful study of the child's head to determine wherein I had been at fault. The head was stuffed with jute as full as it could possibly be stuffed, and the edges of the puncture wound were sewed together. It then appeared that the head presented none of the characteristic signs of hydrocephalus. None of the direct measurements exceeded the normal by more than one and a quarter centimetres. The occipito-frontal diameter was thirty-eight centimetres. The sutures did not gape excessively, nor were the fontanelles so large as to attract attention. The shape of the head did not suggest hydrocephalus at all, as may be seen by contrasting Fig. 3 with Fig. 4, the latter representing a case of mine in which there was no difficulty in the diagnosis.

The second symphyseotomy was performed upon a woman who had been four days in labor when I first saw her. She had had three children—two destroyed in labor, the third, a girl, born alive. The pelvis was generally contracted, with a conjugate diameter of nine centimetres. The child's head appeared

to be of normal size ; it was unengaged above the pelvic brim. The woman was prepared for a symphyseotomy, etherized, put upon a table, and an attempt was made to engage the head with



FIG. 3.

FIG. 3.— Minor grade of hydrocephalus, unrecognizable by the ordinary tests.

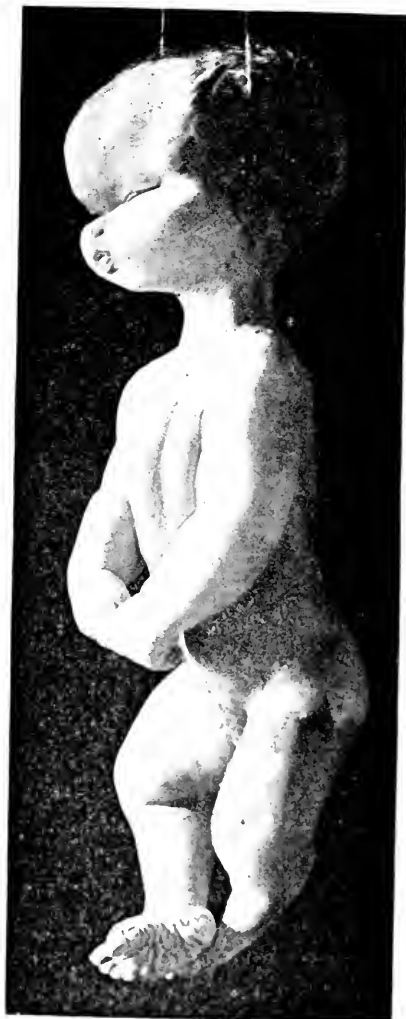


FIG. 4.

FIG. 4.— Well-marked hydrocephalus, easily recognized during labor.

forceps. This failed after twenty minutes' effort. The symphysis and the subpubic ligament were cut while the forceps was still attached to the child's head. It was then easy to pull

the latter through the pelvis. I have never seen the utility of the operation better demonstrated. The mother and child did well. This makes my sixth symphyseotomy, which Dr. Harris tells me (March 28th) is the largest number performed by any operator in America. Four of the children lived and all the women recovered. They all had afebrile convalescences except



FIG. 5.—Knife for the subpubic ligament.

the first, who developed phlegmasia, not from the operation, but from the difficult labor that preceded it.

A few words are still in order about the technique of this operation. Increasing experience convinces me that it is one of the most difficult and troublesome of the obstetrical operations, both in its performance and in its after-care. The difficulties in the operation are decreased by the suprapubic incision and by the use of the Galbiati knife. This plan has the advantages of a wound more easily guarded from infection, of less danger of



FIG. 5.—Hip-binder for use after symphyseotomy.

hemorrhage, and of less risk of injuries to the urethra and bladder. It has the disadvantage that the subpubic ligament is harder to cut. I have failed, I think, in every case to cut the ligament with the upward stroke of the knife that severs the joint, and I have been compelled to reinsert the knife to cut the ligament.

For this purpose the Galbiati knife is a clumsy implement, and

I have had constructed a special knife for the ligament that, I think, will prove convenient (Fig. 5).

The difficulties in the after-care of the patient are decreased by the use of a good hip-binder, and by the use, as suggested by Dr. Dickinson, of sand bags under the mattress.

I have employed the binder illustrated in Fig. 6 in three cases, and shall continue to use it. The anus, vulva, and urethra are left accessible, while the pelvis is well supported. It is wise, in addition, to pass a broad strip of rubber adhesive plaster around the hips, leaving the gauze attached to that portion of it which runs across the back.

SYMPHYSEOTOMY VERSUS SYMPHYSIOTOMY.

BY

ROBERT P. HARRIS, A.M., M.D.,
Philadelphia.

As these two titles have the same pronunciation, the slight difference in their spelling would appear of no consequence but for the fact that the first indicates a proper derivation and the second an improper one.

When Sigault wrote his thesis in 1773, he gave as its title *Sectio symphyseos ossium pubis*. He operated in 1777. In 1778 Roussel de Vauzème, of Paris, repeated the title of Sigault in reporting his own case.

In 1787 Verdier du Clos gave the operation a triple Greek title and called it *symphyséotomie*, which is still its name in France. The central word of this title, *φυσίς* (phusis), by its genitive *φυσέως* (phuseōs), determines the spelling of *symphyseos* and *symphyseotomy*. *Φυσέως* is the genitive of Attic Greek and is retained in the modern language.

Pubiotomy and *ischiopubiotomy* are correctly spelled with an "i," because the genitive of pubes is pubis (*of the pubes*). It is just as incorrect to spell "pubiotomy" with an "e," from the nominative, as it is to write "symphyseotomy" with an "i," from the same case. We therefore write "pubiotomy" and "symphyseotomy" for the same reasons.

In languages other than English we find the Greek genitive

carefully adhered to. This is the case in the ten examples here given:

<i>French,</i>	"Symphyséotomie."	<i>Danish,</i>	"Symfuseotomi."
<i>German,</i>	"Symphyseotomie."	<i>Swedish,</i>	"Symfuseotomi."
<i>Russian,</i>	"Symphizeotomii."	<i>Portuguese,</i>	"Symphyseotomia."
<i>Polish,</i>	"Symfuseotomii."	<i>Roumanian,</i>	"Simfiseptomia."
<i>Finlandish,</i>	"Symfuseotomi."	<i>Dutch,</i>	"Symphyseotomie."

In Ionic Greek, which is not the standard of the language, the genitive of *φυσίς* is written *φυσιοῖς*. Possibly the originator of the spelling in "i" may have thence obtained it, but it is more probable that it came directly from the nominative as an error.

In Italian the spelling is exceptional and national: the term "sinfisiotomia" is compounded of *sinfisis* and *tomæ*.

There should be but one way of spelling in English, and the term ought to be based upon the Attic Greek genitive, "*φυσέως*."

329 S. 12TH STREET.

DOUBLE TUBERCULAR TUBO-OVARIAN ABSCESS—CELIOTOMY.¹

BY

JOHN B. SHOBER, M.D.,

Surgeon to the Howard Hospital; Assistant Surgeon to the Gynceean Hospital,
Philadelphia, Pa.

(With one illustration)

It is not the intention of the writer to give a detailed clinical history of this very desperate case, but rather to point out some of its more important and striking features.

Fortunately, it is no longer an almost daily occurrence to meet with cases of pelvic disease so far advanced as the one about to be described. We are all, however, familiar with the type, although we seldom if ever meet two cases which are alike.

The interest in this case lies in the prostrated and almost hopeless condition of the patient when first seen; the impossibility of doing more than to free adhesions and effect drainage at the operation; the measures adopted to keep up drainage, subsequent nursing of the patient, and the pathological report.

M. H., colored, single, æt. 27, was admitted to the Gynceean

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, April 18th, 1895.

Hospital February 9th, 1895. Her previous and family history reveals nothing important. She had always enjoyed excellent health until five years ago, when she had an attack of peritonitis which kept her in bed nine weeks.

She has not been well since then, her chief discomfort arising from painful menstruation and intestinal disturbances. Her menstruation, however, was regular and normal in quantity and quality until last September. This period, which occurred on the 5th of the month, was ushered in with an attack of excruciating pain, principally confined to the left side, was very scanty, and lasted only two days. The pain persisted, and has continued with but slight interruption ever since. She has steadily lost weight and strength, and there has been no further showing of the menstrual period. Her normal weight is one hundred and fifty pounds; her present weight is one hundred and fifteen pounds. Her bowels have been irregular, with a tendency to diarrhea. She has been unable to leave her bed since the September attack.

She was first seen by me February 8th, 1895. The temperature was $100\frac{1}{2}^{\circ}$, pulse 100, respirations 24. Urine negative. Heart weak but normal, bowels loose. She was suffering severe pelvic pain and was much emaciated.

The abdomen was very tender to palpation, with flat percussion note as high as the umbilicus. Nothing could be outlined per vaginam but a small virgin cervix protruding from a dense and tender mass which completely filled the pelvis.

On the following day celiotomy was performed. The pelvis was filled with a mass which consisted of the uterus firmly fixed between two large abscesses, over which lay the Fallopian tubes. Everything was matted together by adhesion, and loops of intestine were adherent posteriorly and over the mass and to the anterior parietes. In separating a loop of intestine from the right side the abscess was opened, the intestine having formed part of the wall of the cavity. About five ounces of pus having a fetid and fecal odor escaped; a cover glass preparation was at once made by Dr. Beyea, and it showed streptococci in large numbers, and a long-stemmed bacillus and a short bacillus, probably bacillus coli communis. The right tube was removed with a portion of the abscess wall on this side. The same was accomplished on the left side. Both abscess cavities were thoroughly flushed out. A small rent which occurred in the serous coat of

the intestine while freeing adhesions was repaired, and the abdomen was closed with glass drainage.

It was necessary to clean the tube every fifteen minutes. On the third day her condition became alarming, her pulse having risen to 160 and temperature $103\frac{2}{3}^{\circ}$. Feces were escaping through the tube, and the patient was in a condition of profound sepsis. At this juncture recourse was had to a measure which undoubtedly saved her life. This consisted in substituting for the original tube a double glass tube for continuous irrigation. At the same time the patient was placed upon a treatment of vigorous stimulation. From this time onward for a period of four weeks she took sixteen ounces of whiskey, twenty grains of quinine, one-fifth grain of strychnine, one drachm of the tincture of digitalis in divided doses daily, and from four to six ounces of milk every hour. All this she retained and there was seldom any tendency to nausea. Irrigation through the double tube was continued for three days. At this time the tube was accidentally broken, and, the indication for its use having ceased, a rubber tube was substituted. The patient improved, her pulse dropping to about 100 and assuming a better character, and the temperature falling to 100° or under. Feces continued to discharge in large quantities through the tube, and have persisted since its removal a few days later. There has been a persistent discharge of pus at times through the fecal fistula, as well as from a fistulous tract which opened about one inch below it.

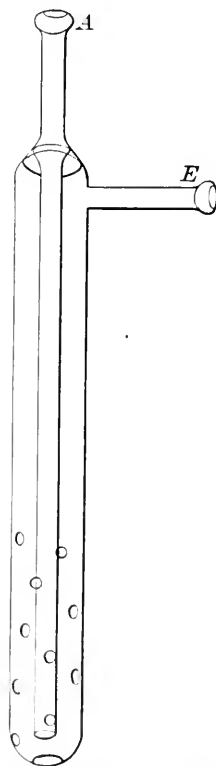
A small quantity of feces passes daily per rectum. The urine has remained normal. Since April 3d she has been able to sit up in bed for an hour or two daily. Examination per vaginam on April 12th showed the cervix about one inch from vaginal outlet, with a bulging mass on the left side. As soon as her strength permits it is intended to make a free opening here in order better to facilitate drainage.

The double glass drainage tube used in this case was devised and first used by Dr. Charles B. Penrose. It can be best explained by the accompanying drawing.

I am indebted to Dr. Beyea for the following pathological report:

Specimens consist of both Fallopian tubes and a mass of what seems to be ovarian tissue and the wall of an abscess. Diagnosis: chronic, bilateral pyosalpinx and perisalpingitis and tubo-ovarian abscess of the left side. The left tube is three

inches in length, one-half, two-thirds, and three-quarter inch in diameter. The ostium is closed. There is no sign of fimbria. The tube is covered with adhesions, particularly on its posterior surface, where there is a small portion of ovarian tissue, one surface of which being the abscess wall. The internal surface appears very much like papillomatous tissue. The tube is very hard in consistence—almost stony hard. On section the lumen is very small and contains inspissated pus. The right tube is



Glass drainage tube. A, afferent, E, efferent nozzle.

two and a half inches in length, three-eighths, one-half, and three-quarter inch in diameter. It is stony hard, and on section the muscular wall is much hypertrophied, being one-quarter inch in thickness. The lumen is large and filled with caseous material, and there are areas of caseation appearing like tubercles. The portion of ovarian tissue and abscess wall measures three and a half by two and a half inches by one inch. The smooth surface contains a few small cysts and hard nodules.

The abscess surface is papillomatous, corrugated, and appears like a papillomatous cyst. These specimens surely appear tubercular.

Microscopic examination.—Sections from both tubes show the mucous membrane completely destroyed, and replaced by tubercular tissue with miliary tubercles, giant cells, and in many places advanced caseation. The tube wall is infiltrated with tubercular tissue and small round cells. The small round-cell infiltration is pronounced in all parts of each section and in all sections. The abscess wall is composed of ovarian tissue showing acute inflammation, caseation, and frequently infiltrated with miliary tubercles. These specimens therefore represent chronic, diffuse tubercular salpingitis or pyosalpinx, tubercular tubo-ovarian abscess with acute inflammation. No sections have thus far been stained for the tubercle bacillus. That the tubercular process was the primary disease is self-evident, since the abscess wall was the only part showing acute inflammation.

CONGENITAL ARREST OF DEVELOPMENT OF INTESTINE.

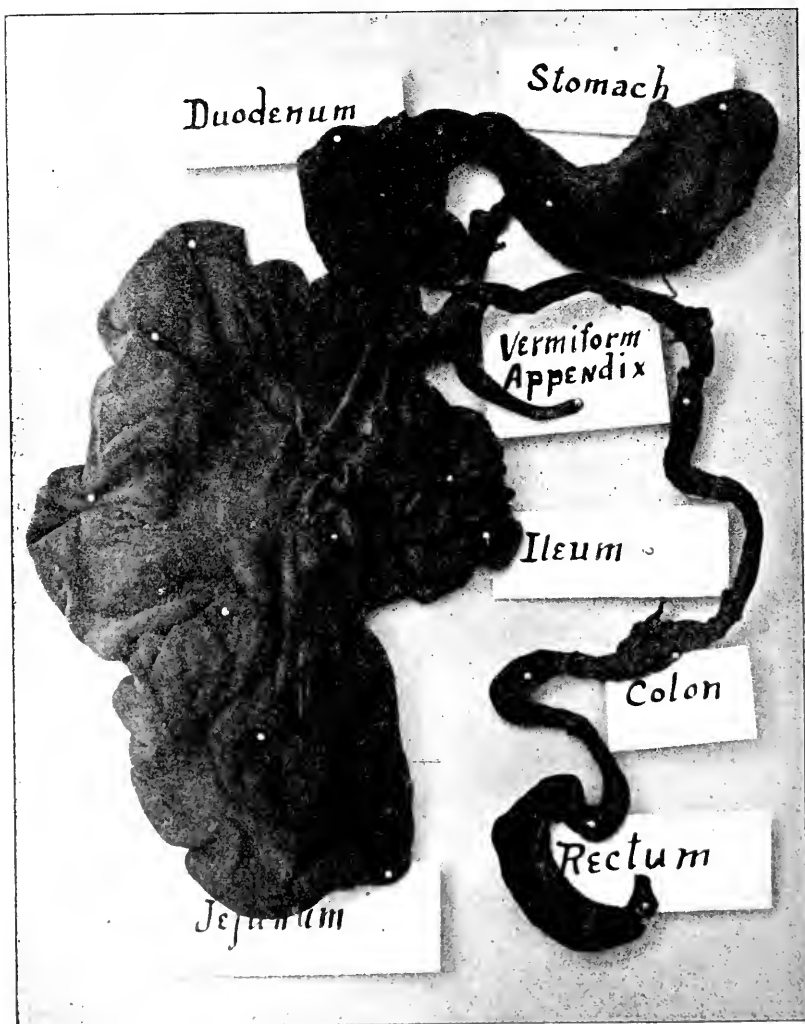
BY

WILLIAM L. STOWELL, M.D.,
New York.

(With one illustration.)

THE specimen which I have had photographed shows a very unusual arrest of development of large and small intestine. The clinical notes are kindly furnished me by Dr. P. H. Ernst: "On October 5th, 1893, I was called to attend George Woolfe, an infant 7 days old, who was suffering from intestinal obstruction and vomiting. The mother said there had been no movement from the bowels since birth; but this gave little alarm until the fifth day, when the child vomited matter having a fecal odor. Upon inquiry I learned that when 2 days old the child was given a teaspoonful of castor oil, but without effect. On the next day magnesia was administered, which also failed to act, except to cause vomiting. Meanwhile the child nursed well and did not vomit the mother's milk. From the fifth day nursing

caused vomiting. The child was constantly bearing down and straining, and seemed to suffer much pain. Examination showed a fully developed but very emaciated body, with abdomen swollen and distended and very sensitive to touch. Palpation dis-



closed a large mass in the right iliac region which felt like the tumor of intestinal obstruction. A rectal injection of warm water and glycerin brought nothing but a little blood. I concluded I had a case of intestinal obstruction or congenital stricture to deal with. I made several attempts to give a large enema of warm

water, but without success. Stomach lavage was done once, but failed to give relief. The vomiting persisted. The abdominal distention and straining increased, and the child died on the ninth day."

Autopsy.—All organs normal and healthy except intestinal tract. The stomach was six centimetres long, with a constriction at the pylorus. The duodenum was then dilated for six centimetres until another constriction cut it down. Beyond this the intestine was a large pouch, twenty-five centimetres long, ending abruptly in a blind end. There was then a cord-like remnant of gut of ten centimetres length, ending in the atrophied remainder of ileum half a centimetre in diameter and collapsed.

The vermiform appendix was four centimetres long and attached to the first portion of the duodenum. The colon was less than half a centimetre in diameter until it joined the rectum. The latter was pervious but small. It is obvious that surgery could avail nothing in such a case.

Literature.—Dr. Davis Coley reports a case in which the small intestine was dilated one and a half inches wide to within nine inches of the cecum, the remainder of the bowel being like a tape. He mentions seven similar cases collected by Theremin.¹ Thomas² reports a child with absence of jejunum, ileum, and greater part of colon; stomach and other organs were normal. Wilks³ describes and illustrates a case of stricture of the duodenum immediately over ductus communis choledochus. In this case the duodenum was distended to nearly the size of the stomach. There was no sign of inflammation. The child died in two days. Craig reports a case of the colon atrophied to the size of a quill. A previous child of this mother had died also of intestinal obstruction.⁴ Imperforate anus and rectal abnormalities are quite frequent. A considerable number of cases are on record of lack of development in the intestines, these mentioned being most like the specimen presented.

In referring to embryology I find that at the third month of gestation the cecum is found as a large pouch just below the stomach. A portion of it grows rapidly and becomes the colon. The other side of the pouch shrinks and atrophies, and remains

¹ Transactions of the Pathological Society of London, 1877, vol. xxix., p. 115.

² London Lancet, 1884, i., 63.

³ Transactions of the Pathological Society of London, vol. xii., p. 102, 1861.

⁴ Transactions of the Edinburgh Obstetrical Society, 1881, vol. vi., p. 146.

as the vermiform appendix. It would seem therefrom that in the case photographed development was arrested at the tenth or twelfth week. The cause, of course, cannot be known. It is to be hoped that enough cases may be reported to some time form a basis for comparative study.

28 WEST 36TH STREET.

A CASE OF DOUBLE UTERUS AND DOUBLE VAGINA.¹

BY

WM. M. SPRIGG, M.D.,
Washington, D. C.

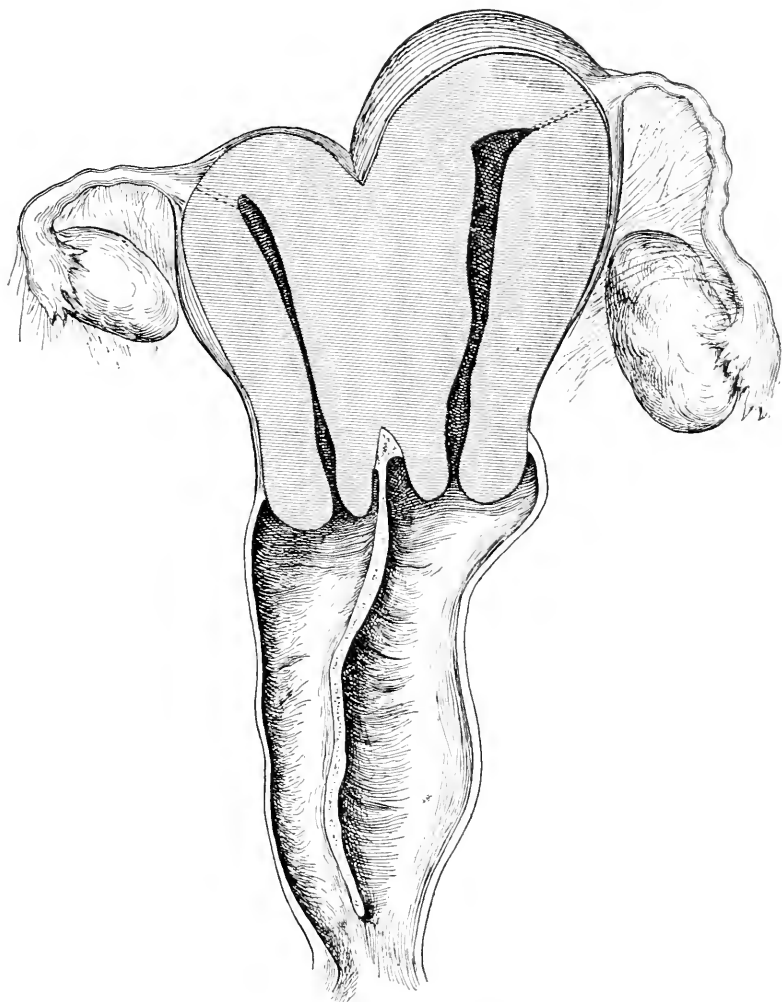
(With one illustration.)

ARRESTED developments and over-developments of the female genital organs are always of more or less interest, representing as they do the eccentricities of the generative process. Especially would it be interesting to determine what forces were at work in the embryo to produce the variety of deformities that do occur. We know that a child may have six fingers instead of five, and that a multiplication of organs does occur, but we do not know the cause of their excessive development. It is more than probable that malformation of the female genital organs occurs more frequently than statistics would indicate, for many of these cases neither require nor are amenable to operative measures and are consequently never reported.

E. B., white, female, unmarried, aged 36 years, placed herself under my care for relief of an incontinence of urine that had existed more or less continuously since early childhood. She had never had any form of infantile paralysis. With the exception of this incontinence her health had been unusually good. For this condition she had frequently been under treatment without relief. Menstruation began at the age of 13 years, a little profuse at first, but otherwise normal, occurring every four weeks and lasting from three to five days. Between the sixteenth and twenty-second years this incontinence gave her very little inconvenience. At the age of 26 it became so distressing, and

¹ Read before the Washington Obstetrical and Gynecological Society, November 16th, 1894.

accompanied by a leucorrhœa, that she placed herself under the care of a gynecologist in Brooklyn, where she resided at that time, and was "assured that her genital organs were normal and played no part in causing the incontinence." Under his treat-



Case of double uterus and vagina. Natural size.

ment the leucorrhœa was promptly controlled, but the incontinence continued. Her physical development is good, a well-rounded and symmetrical figure, with no disposition to lateral extension of the rest of the body, as is said to sometimes occur with uterus bicornis duplex.

Upon examination the external organs of generation were normal. Upon digital examination the finger entered readily the left vaginal tract, which simulates a normal vagina, except that the longitudinal axis of the tract extended a little to the left of the median line. The cervix was normal in appearance in all respects, except that it was smaller than a normally developed uterus. The length of the vagina was 7 centimetres ($2\frac{5}{8}$ inches). The cervical canal measured $4\frac{3}{8}$ centimetres ($1\frac{7}{8}$ inches). The fundus of this uterus could be made out a little to the left of the median line, and in the same longitudinal axis as the left vagina. The left ovary apparently normal. About $1\frac{3}{4}$ centimetres ($\frac{3}{4}$ inch) from the vaginal entrance, and a little to the right of the median line, was the beginning of the longitudinal septum, $5\frac{1}{4}$ centimetres ($2\frac{1}{8}$ inches) in length, dividing the vagina and separating the left from the right cervix. The right cervix was not so well developed as the left, being smaller and the os uteri situated nearer the septum. A speculum could be readily inserted into this vaginal tract to inspect the parts. This cervical canal was $3\frac{1}{2}$ centimetres ($1\frac{7}{16}$ inches) in length. Two uterine sounds were introduced, one in each cervical canal, thus showing them entirely separated. The right cervix was directed more toward the septum than in the longitudinal vaginal axis. This ovary was distinctly made out lying lower in the pelvis than the left. By rectal examination the relative position of the two horns was distinctly determined. The left horn or fundus was found to be, as before stated, a little to the left of the median line and smaller than normal. The right horn or uterus was united to its fellow throughout the greater part of its length, and then its fundus was deflected at an obtuse angle to the right side. The fact that the incontinence of urine was most distressing for the week prior to and the week following her menstrual period, and that during her period this condition was relieved, leads me to believe that there must be some association between the two conditions. It will be seen that the anterior attachment of the vaginal septum extended from between the double cervix to a point in the anterior vaginal wall just under the sphincter muscle of the bladder. Before reporting this case it had been my intention to remove this septum, believing that with its removal the incontinence would be relieved. It was an interesting question to me to determine whether or not this patient menstruated with both sides every four weeks, or whether the uteri alternated. In fact the patient

told me that the ovaries were slightly but distinctly sensitive on alternating months at her periods. Upon making examinations during two menstrual periods, it was determined that she menstruated one month from one side and the next month from the other. Pregnancy may take place just as easily in a double uterus as in a single, or both uteri may be the seat of development of a fetus. Even if pregnancy exists in one side, the other side participates more or less in the development, increasing in size, producing new muscular tissue, and forming a decidua of its own. It has been for some time proven that ovulation does not cease during pregnancy. Should marriage take place after the removal of this septum, what would be the probability of superfetation?

1023 VERMONT AVENUE, N. W.

OÖPHORECTOMY FOR FIBROID TUMORS OF THE UTERUS.¹

BY

WILLIAM P. CARR, M.D.,

Washington, D. C.

As the treatment of fibroids or fibromyomatous tumors of the uterus will in great measure depend upon the gravity with which we regard the affection, it is desirable, in the first place, to consider the serious nature of these growths.

The traditional idea that a fibroid is a harmless growth, not endangering life, giving rise to more or less inconvenience solely on account of its size, and likely to shrink after the menopause so as to cause no further trouble, is a difficult one to get rid of.

But it is certain that this view of these growths must be greatly modified to coincide with the facts as we find them to-day. Either the older writers failed to recognize the dangers and suffering to which they gave rise, or the nature and clinical history of these tumors have materially changed. I have no doubt that both propositions are to some extent true. The older physicians, not knowing what to do with these tumors, tried to put the best face upon the matter and closed their eyes as far as possible

¹ Read before the Washington Obstetrical and Gynecological Society, November 2d, 1894.

to the dangers attending them. The immediate cause of death was noted, and the connection between the diseased kidney or the malignant growth and the causative fibroid was overlooked. Again, we know that the nature of diseases does change to some extent from time to time. It is the consensus of opinion that syphilis and typhoid fever are milder than of old and that gonorrhea is more serious and intractable. Habits of life are such as to render fibromata more formidable than they were in earlier days, and I can readily believe that they lead now to serious complications oftener than in former years. At any rate, we are confronted by facts that show in the most startling manner the gravity of these growths.

In an article on the treatment of uterine fibroids in the *Virginia Medical Journal*, April, 1893, I reported four autopsies in which death was directly due to the tumors :

CASE I.—A young colored woman was delivered of a child by Dr. W. D. Harigan at Columbia Hospital, and died, a few minutes after delivery, in collapse. The uterus was found to contain a large number of small fibroid tumors, and was raw and bleeding over a large extent of its surface. A large quantity of blood was in the abdominal cavity. Evidently the fibroid uterus, while distended by the fetus, had formed numerous vascular adhesions which, when the uterus emptied itself and contracted, were torn and gave rise to a fatal hemorrhage which nothing could have prevented.

CASE II.—A white woman, aged 37 years. Fibroid tumor completely filling the pelvic cavity and obstructing both ureters, the left ureter being an inch in diameter, and the left kidney distended with urine until it was a mere sac. The right ureter was but slightly distended, but the kidney was in a state of acute inflammation.

CASE III.—A subject in the dissecting room was found with an immense hydronephrosis, due apparently to pressure of a fibroid tumor upon the ureter. There was also abdominal dropsy, and the other kidney was apparently diseased, though, as the subject had been injected, it was difficult to determine this point.

CASE IV., also a subject in the dissecting room, had evidently died from obstruction of the bowel by a large fibroid tumor which so completely filled the pelvis that I was unable to pass my finger behind it in the rectum, either from below or from above, after opening the bowel.

I have now two more fatal cases, making six that have come under my own observation :

CASE V.—Colored woman, 49 years old. Autopsy showed immense fibroid with several foci of suppuration and one large collection of pus. General peritonitis, undoubtedly from the suppurating fibroid.

CASE VI.—White woman, 30 years old. Small submucous fibroid. She had repeated hemorrhages, then a severe hemorrhage, and had an attack of bronchitis at the same time ; weakened from hemorrhage, the bronchitis became capillary and she died from catarrhal pneumonia.

These cases have taught me that the dangers are not imaginary. When we meet such autopsies, and when we see fibroids continually giving rise to local peritonitis, to ascites, to albuminuria, to varicose omental veins, to gelatinous degeneration of the omentum, it seems foolish to deny that they are a source of very great danger to life.

Then there is the liability of cystic or malignant degeneration, both of which changes I have seen taking place in fibroid tumors removed by hysterectomy at Columbia Hospital.

Just how much danger exists in any given case it is difficult to say. But I do not suppose I have seen over one hundred and fifty women with fibroids, and here are six deaths coming under my own observation, undoubtedly due to fibroid growths. Yet I venture to say that in only two of the death certificates was any mention made of the real cause of death. Most women afflicted with these tumors die of some intercurrent disease ; but in how many instances would they have recovered from the intercurrent affection if they had not been hampered by the tumor, and how often is the tumor mentioned as having any connection with the death ? Aside from the inconvenience and suffering produced, which is severe in some cases and slight in others, we must, I think, regard the presence of a uterine fibroid as a very serious menace to life.

A most important consideration in this connection is : What can we expect from the menopause ?

This is a question that must be decided before we can judge properly of the treatment that should be pursued.

Some cases undoubtedly improve after that epoch, while others grow on, or grow more rapidly, or, what is worse, undergo cystic or malignant change. Very few of us, I think, have the placid

faith in its efficacy that was instilled into us twenty or even ten years ago. I am unable to give any figures on this point, but I believe—and I think those who have had a large experience with these tumors will concur with me—that not more than half the cases are benefited by the menopause, and that those not benefited are made worse. And the danger from a fibroid after that period is much greater than before. The danger of malignancy, of cystic degeneration, of a lessened power of resistance to intercurrent diseases—in fact, nearly all the dangers are increased, while the chances for a surgical cure are steadily diminishing from the inception of the tumor. There is not enough hope in the menopause for us to wait long for it, if by waiting we allow the tumor to grow and form adhesions.

If adhesions have already formed neither the natural nor the artificial menopause will do any good. But who knows when the menopause is coming to any particular woman? Can we wait for a change that varies over a period of twenty-five years? The first woman I tried to console with the menopause was 46 years old; but she would not be consoled, because her mother menstruated until 60. I have another patient whose mother and sisters ceased menstruating at 30, but this lady has been vainly waiting for her “change” for *sixteen years* and still menstruates regularly at 46. In any case we may have ten years to wait where we expect only one or two—ten years of suffering and risk, ten years during the first half of which all hope of a safe cure will vanish. I regard the menopause as a quantity too uncertain in time and too uncertain in result to be awaited, except in cases where a hysterectomy is the only alternative and where there is a reasonable expectation that menstruation will cease within a year or two.

In view of these facts we must regard fibroid tumors as grave and dangerous growths, the menopause as very uncertain in time and in result. Therefore I think palliative measures should be abolished, except in emergencies or as temporary resorts.

We have various means by which we may control pain and hemorrhage, but I do not think we are justified in using them, as we have been taught to do, to the exclusion of radical operations, until we allow the tumor to reach a stage where only a formidable hysterectomy can afford relief, unless the patient, after a proper statement of the case, absolutely refuses operation.

We should use the proper surgical treatment before the tumor

attains the size of a child's head—preferably before it is as large as a hen's egg. And in the next decade we should rarely read such headings as: "The removal of a fibroid weighing forty pounds; operation successful; patient died of Bright's disease three days later."

I think it will be admitted that we have but three ways of producing what might be called a radical cure—viz., ligation of the uterine arteries, removal of the appendages and adhesions, and hysterectomy.

Ligation of the uterine arteries may be done through the vagina at any stage of growth, but can only be of benefit when the tumors are very small and free from adhesions. It is a comparatively new operation and we are unable as yet to say whether its effects are permanent or temporary. It certainly causes a diminution in the size of the tumor. But, as long as the tubes and ovaries are left, I do not see how we can expect permanent atrophy of the uterus or of growths springing from it. As long as the tubes and ovaries are left the functions of the uterus will remain or attempt to re-establish themselves. Collateral circulation will be established and the growth begin again. I am satisfied, however, that a complete removal of the tubes and ovaries, *together with all collateral blood supply through adhesions*, will certainly cause a cessation of growth and relief of symptoms in all cases of fibroids of the uterus in which this operation can be thoroughly and properly done. Removal of the appendage alone without breaking up all adhesions will not give a successful result in many cases, as the growth will be nourished through these adhesions after uterine atrophy. Hegar gives fifty-five cases, of which thirty-three were completely successful, and his are the most unfavorable statistics I have seen. Fehling, Prochownik, Tissier, Bouilly, Ségond, and Terrillon all give over two-thirds of their cases as successful.

It is surprising that they had such good results, for most of the tumors were of considerable size and many of them had formed adhesions which were not broken up. Some of the older operations were done because the adhesions were so dense that it was thought the tumor could not be removed. I heard of a case in this city recently in which the operator started in to do a hysterectomy and ended by removing one ovary, because the adhesions were formidable and only one ovary could be found. Such cases only emphasize the necessity for early operation.

Tait, in his "Diseases of Women," reports fifty consecutive cases of oöphorectomy for fibroids, of which forty-eight were completely successful. One of the failures was due to mistaken diagnosis, the tumor proving to be malignant; and the other, he says, was a soft myoma—a tumor very difficult to distinguish from sarcoma.

In a paper read before the Medical and Surgical Society of this city, February, 1893, I reported three cases of my own, all of which were completely successful and remain so at present, the tumors in all three cases disappearing completely.

I have now one more case.¹

Mrs. F., white, single, aged 27. This young woman was taken suddenly with severe pains and hemorrhage, and supposed herself threatened with a miscarriage, as she had reason to believe herself pregnant.

By bimanual examination I discovered several small intramural fibroids. I kept her under observation several months and satisfied myself that she was not pregnant. She suffered more than is usual in such cases from pain and backache. I thought the tumors very perceptibly enlarged during this time, and one of them grew to the size of a hen's egg. January 10th, 1894, assisted by Dr. Middleton and Dr. Ruffin, I operated upon her at her home, removing both tubes and ovaries and separating an adhesion to the bladder, which I think is unusual. She recovered promptly and has had no pain, hemorrhage, or other symptoms referable to the tumor since that time, and has not menstruated since the operation. Examination in September, 1894, showed the uterus smaller than a normal uterus and the tumors could not be distinguished.

I have never had any cases more satisfactory than these four, and they have confirmed me in my belief that all fibroids of the uterus can be cured by removing their blood supply and the tubo-ovarian influence. The cause of failure has been the leaving of vascular adhesions, and I think *cases with adhesions that cannot be broken down had better be treated by hysterectomy*. I have had no difficulty in destroying slight adhesions.

The danger of this operation is usually overestimated. Statistics give a mortality of one to three per cent. Tait's mortality

¹ Since writing the above I have had one more case, completely successful. These five cases are all upon which I have operated, and all have been complete successes.

is 1.26 per cent in two hundred and sixty cases. Even this small death rate will be found upon careful examination to be due to complications, and in an otherwise healthy woman perfect recovery is almost certain in the hands of a careful operator. I see no chance for a death except from the ether, from sepsis, or from hemorrhage from separated adhesions.

We can control septic infection almost absolutely. With small tumors the adhesions are slight, and with proper care there is no danger of hemorrhage. *When the adhesions are very formidable the case is not a proper one for removal of the appendages.* It has gone too far and can be properly dealt with only by enucleation or by hysterectomy or some of its modifications. *In suitable cases, therefore, the danger is almost nil.* The mortality is less than that from child-bearing. If, then, we have a safe and sure cure for fibroids in their early stages, why should we let them go on until they become formidable; until they destroy health and happiness and threaten life, or even cause death; until they become such a source of misery that patients are willing to undergo one of the most dangerous and bloody operations of surgery for their relief? Is it because the diagnosis is not made early? In some cases the symptoms are not sufficient to cause the patient to seek medical advice until the tumor is large, and for such we are not responsible. But most cases do consult a physician before the tumor has gone beyond the reach of this comparatively simple operation, and for such cases he is responsible, unless he fully explains the case and operation is refused. I know of a number of women now who are being treated by various palliative measures for small growing fibroids by well-educated physicians. Most of these women would accept the operation if it were properly presented to them.

The trouble, in many cases at least, is with the physician. He does not realize the serious nature of the tumor, he is sceptical as to the results of the operation, or he has an exaggerated idea of its danger. He confounds it with hysterectomy and tells his patient, perhaps, that the mortality is ten per cent or twenty-five per cent; he wishes, perhaps, to experiment with electricity—in short, he is not satisfied that the case demands early and radical treatment.

It is strange that even at the present day well-informed physicians will tamper in this way even with cancer of the uterus. I met a prominent physician of this city on the street some

time ago, and he told me that he had been watching a case of cancer of the uterus for about a year and thought it was getting so bad that he would have to send her to a surgeon soon.

Such treatment does not belong to this day and age. I think the physician who delays in such matters trifles with human life and takes upon himself a great responsibility. I have never had a patient refuse an operation for cancer or for fibroids in the early stage of either disease, and I would not urge operation on any patient late in either disease.

My object in reading this paper is to call attention to the serious nature of uterine fibroids, and to urge early resort to radical means of relief before it comes to be a question of hysterectomy or nothing, or, worse than nothing, a removal of the appendages in unsuitable cases.

1319 THIRTEENTH STREET, N. W.

ABDOMINAL SECTION BY COW-HORN.

BY

W. Q. SKILLING, M D.,
Lonaconing, Md.

On the evening of July 25th, 1893, I was hurriedly called to see Mrs. T. B., the messenger boy stating that she had been gored by a cow. Arriving at the house a few minutes later, I found the woman lying on the bed, her clothing saturated with blood. Her countenance was anxious and pale, but there was only slight evidence of impending shock. On examination I found the cow-horn had entered the abdomen just above the symphysis a little to the right of the median line, taking an oblique course to the right, making an ugly rent six inches in length in the abdominal wall. There was a rent in the peritoneum through which the intestines protruded. The amount of blood lost was slight in comparison to the extent of the injury.

The patient was placed under the influence of chloroform by my father, Dr. J. D. Skilling. After thoroughly cleansing the parts with hot water, the intestines were carefully replaced and the wound in the peritoneum closed by a continuous suture of

fine silk. The abdominal wound was united by superficial and deep interrupted sutures of iron-dyed silk, dusted with iodoform and boric acid 1:7. Iodoform gauze, absorbent cotton, and the abdominal bandage completed the dressing. The wound healed by first intention, excepting at lower angle where slight suppuration took place, probably caused by contamination with dirt from the horn of the cow or from the clothing of the patient. Notwithstanding the unfavorable surroundings, the patient made a rapid and uneventful recovery and was able to attend to her household duties in less than six weeks.

A METHOD OF PREVENTING THIRST FOLLOWING CELIOTOMY.

BY

WILLIAM H. HUMISTON, M.D.,

Clinical Lecturer on Gynecology, Medical Department Western Reserve University ;
Consulting Gynecologist to City Hospital ; Fellow British Gynecological
Society, etc., Cleveland, Ohio.

No one who has had any experience in the after-care of abdominal cases will deny the important place that thirst occupies. It is the *one* prominent, annoying, and distressing symptom, and I know it can be overcome.

This is my method of procedure :

The patient should have the usual preparation for celiotomy —*i.e.*, diet, daily baths, cathartics, etc. For three days prior to operation, order the patient to drink one pint of hot water an hour before each meal and on retiring, thus drinking two quarts of water each twenty-four hours, *the last pint to be taken three hours before the time set for operating*. Do not omit to give the water the day previous to the operation, while the patient is restricted to a limited amount of liquid nourishment and the bowels are being unloaded. We thus restore to the system the large loss of fluid occasioned by the free catharsis, and we have the great satisfaction of seeing our patient pass through the trying ordeal of the first thirty-six hours after operation in comparative comfort, with no thirst, a moist tongue, and an active renal function, represented by an excretion of from twenty-eight to fifty fluidounces of urine during the first

twenty-four hours, catheterization being seldom necessary. This is in keeping with the full character of the pulse noted.

The above detail I have recently carried out in twelve cases. To eleven chloroform was administered, to one ether. The time required to complete operation varied from ten to fifty-five minutes. Whether the case was one of sclerotic ovaries or a pus case with universal adhesions of all the pelvic structures, the result has been uniform and highly satisfactory, thirst being allayed and excretion stimulated (a very essential condition to a prompt recovery).

I believe this method will prove to be efficient in the hands of abdominal surgeons generally, and I publish it early with all confidence that the twelve cases I have had will soon be fortified by the reports of many hundreds, and that by it we may avoid a condition that is and has been distressing alike to patient, surgeon, and nurse.

123 EUCLID AVENUE.

CORRESPONDENCE.

THE STEPHENSON WAVE.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS.

SIR:—In the number of your JOURNAL for May, 1895, appears an article by Dr. Johnstone, of Cincinnati, Ohio, upon the "Stevenson Wave." The writer apparently refers to a paper written by Dr. Wm. *Stephenson*, of Aberdeen, which was published in the AMERICAN JOURNAL OF OBSTETRICS in April, 1882. Dr. Johnstone, however, makes no specific reference to this publication; he misspells the name of the Aberdeen professor; and, what more especially concerns your present correspondent, he overlooks the fact that Prof. Stephenson opens his own paper with a quotation which sufficiently establishes my claim to priority for the suggestion of a rhythmic wave in the processes of female nutrition, and for at least the initial experiments by which this wave could be demonstrated: "In her prize essay, 'On the Question of Rest for Women during Menstruation,' Dr. Mary Putnam Jacobi has published a series of observations which form a most valuable contribution to our knowledge of

the subject of menstruation." . . . "The results derived from the observations she sums up in the following words: 'We find that in the majority of cases the excretion of urea is increased during the few days preceeding menstruation, over that of the intermenstrual period; that it decreases during the menstrual flow, and is at its minimum just afterward; that the pulse shows no uniform rate of variation, but that the temperature rises just before menstruation, to fall during the flow, but at this time rarely reaching the point of the intermenstrual period. Finally, that the sphygmographic trace shows a constantly increasing rise of arterial tension, from a minimum point reached just after menstruation to a maximum point just before, but rapidly lessened during the menstrual flow' (Essay, page 162). The mode of analyzing the data which Dr. Mary Jacobi has adopted does not permit of a more definite statement, and, *whilst affording proof that such a wave of nutrition does exist*, leaves it to be desired that by other means the actual form of the wave could be accurately determined." Dr. Stephenson himself has not noticed that the Boylston Prize Essay from which he quotes was written for the award of 1876 and published in 1877, consequently preceded by two years the paper of Dr. Goodman, published in 1878, on "The Cyclical Theory of Menstruation," which he observes that my essay "confirms." Nevertheless, he has done the justice of according me full credit for originality in an idea which Dr. Johnstone considers valuable enough to be compared with Harvey's discovery of the circulation—an evident and even grotesque exaggeration!

Dr. Stephenson has plotted ideal charts, but the wave described thereon does not in any respect differ from the wave I had deduced from experimental observations but did not graphically represent. In 1885¹ in my "Studies on Endometritis," and in a later paper on "Intrauterine Therapeutics,"² I established definite clinical correlations with the menstrual wave, and showed how this explained the pathology and should guide the therapeutics of all non-infectious utero-ovarian disease. Similar ideas on these subjects are now everywhere in the air, and their truth generally recognized, and much valuable observation has been added to those which initiated this line of thought. These early observations of my own were undoubtedly inadequate and open

¹ AMERICAN JOURNAL OF OBSTETRICS, June and September.

² Ibid., 1888.

to criticism ; yet, as competent critics have pronounced that they *did* serve a great purpose, I do not see why others, who do not claim for themselves the competency due to original research, should be unwilling to make the same admission or to give credit where credit is due.

Very respectfully,

MARY PUTNAM JACOBI, M.D.

NEW YORK, June 1st, 1895.

THE CHILD-WIVES OF INDIA.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

SIR:—May I ask that you give the following petition, prepared by Mrs. N. Monelle-Mansell, M.A., M.D., of Lucknow, India, a place in the JOURNAL? The facts there stated should elicit the compassion of all enlightened womanhood in behalf of child-wives, and they should be widely known in these days of palliation and exaltation of heathenism.

CALISTA V. LUTHER, M.D.

29 WALNUT STREET, NEWARK, N. J.

PETITION TO HIS EXCELLENCY THE VICEROY AND GOVERNOR-GENERAL OF INDIA.

May it Please Your Excellency,

The undersigned women, practising medicine in India, respectfully crave Your Excellency's attention to the following facts and considerations :

1. Your Excellency is aware that the present state of the Indian law permits marriages to be consummated, not only before the wife is physically qualified for the duties of maternity, but before she is able to perform the duties of the conjugal relation, thus giving rise to numerous and great evils.

2. This marriage practice has become the cause of gross immoralities and cruelties, which, owing to existing legislation, come practically under the protection of the law. In some cases the law has permitted homicide and protected men who under other circumstances would have been criminally punished.

3. The institution of child-marriage rests upon public sentiment vitiated by degenerate religious customs and misinterpretation of religious books. There are thousands among the better educated classes who would rejoice if Government would take the initiative and make such a law as your memorialists plead for; and in the end the masses would be grateful for their de-

liverance from the galling yoke that has bound them to poverty, superstition, and the slavery of custom for centuries.

4. The present system of child-marriage, in addition to the physical and moral effects which the Indian Governments have deplored, produces sterility, and consequently becomes an excuse for the introduction of other child-wives in the family, thus becoming a justification for polygamy.

5. This system panders to sensuality, lowers the standard of health and morals, degrades the race, and tends to perpetuate itself and all its attendant evils to all future generations.

6. The lamentable case of the child-wife Phulmani Dassi, of Calcutta, which has excited the sympathy and the righteous indignation of the Indian public, is only one of the many cases that are continually happening, the final results being quite as horrible, but sometimes less immediate. The following instances have come under the personal observation of one or another of Your Excellency's petitioners:

(a) Aged 9. Day after marriage, left *femur* dislocated, *pelvis* crushed out of shape, flesh hanging in shreds.

(b) Aged 10. Unable to stand, bleeding profusely, flesh much lacerated.

(c) Aged 9. So completely ravished as to be almost beyond surgical repair. Her husband had two other living wives and spoke very fine English.

(d) Aged 10. A very small child, and entirely undeveloped physically. This child was bleeding to death from the *rectum*. Her husband was a man of about 40 years of age, weighing not less than eleven stone. He had accomplished his desire in an unnatural way.

(e) Aged about 9. Lower limbs completely paralyzed.

(f) Aged about 12. Laceration of the *perineum* extending through the *sphincter ani*.

(g) Aged about 10. Very weak from loss of blood. Stated that great violence had been done her in an unnatural way.

(h) Aged about 12. Pregnant; delivered by *craniotomy* with great difficulty on account of the immature state of the *pelvis* and maternal passage.

(i) Aged about 7. Living with husband. Died in great agony after three days.

(k) Aged about 10. Condition most pitiable. After one day in hospital was demanded by her husband, for his "lawful" use, he said.

(l) Aged 11. From great violence done her person, will be a cripple for life; no use of her lower extremities.

(m) Aged about 10. Crawled to hospital on her hands and knees; has never been able to stand erect since her marriage.

(n) Aged 9. Dislocation of *pubic arch* and unable to stand or put one foot before the other.

In view of the above facts, the undersigned women-physicians

and medical practitioners appeal to Your Excellency's compassion to enact or introduce a measure by which the consummation of marriage will not be permitted before the wife has attained the full age of 14 years. The undersigned venture to trust that the terrible urgency of the matter will be accepted as an excuse for the interruption of Your Excellency's time and attention.

(Submitted to the Government September 22d, 1890, signed by fifty-five women-physicians.)

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Meeting of April 19th, 1895.

The President, FRANKLIN H. MARTIN, M.D., in the Chair.

HYDRONEPHROSIS; RIGHT KIDNEY REMOVED BY ABDOMINAL
NEPHRECTOMY; EXHIBITION OF SPECIMEN.

DR. REUBEN PETERSON.—This specimen, a hydronephrosis of the right kidney, which I thought might be of interest, was removed by abdominal section. The patient, aged 22, a housemaid, gave nothing peculiar in family history except that she thought her father died of some kidney trouble. When 8 years old she received an injury to the right side which was followed by fever for about two weeks. One year later she began to pass bloody urine, which continued until she was 18 years of age. She had continuous pain in the right loin and groin, which was worse whenever the bloody discharge from the bladder increased. Some two years ago she consulted Dr. J. B. Murphy, of this city, who discovered a tumor in the right hypochondriac region, which he aspirated and made a diagnosis of cystic kidney. Fever, probably inflammatory, followed the aspiration. She later entered Dr. Senn's service in St. Joseph's Hospital. The inflammatory action produced by the aspirating needle must have caused the tumor to become adherent in its bed, for Dr. Senn could find no evidence of a cystic tumor, and she left the hospital. Dr. Henrotin examined her, diagnosed and removed a left ovarian cyst. The pain, however, did not cease, and the patient was incapacitated for work. I examined her and could find no evidence of cystic kidney. She was not at that time passing bloody urine, and I considered the pain in her right side was probably due to the irritation from the ligature about the stump of the excised appendage. I therefore treated her with ichthyol tampons, etc., which gave no relief. After

consultation with Dr. Boise, of Grand Rapids, I decided to make an exploratory laparotomy.

An incision three inches in length was made in the right linea semilunaris, over the appendix. The appendix was found to be perfectly normal. Nothing abnormal could be found about the stump of the excised ovary and tube; no silk ligature was present. A fluctuating tumor was found in the region of the right kidney underneath the peritoneum. The left kidney was immediately examined and to all appearances was normal. Incision of the peritoneum over the tumor revealed a blue-walled cyst firmly embedded in adhesions, which were separated with

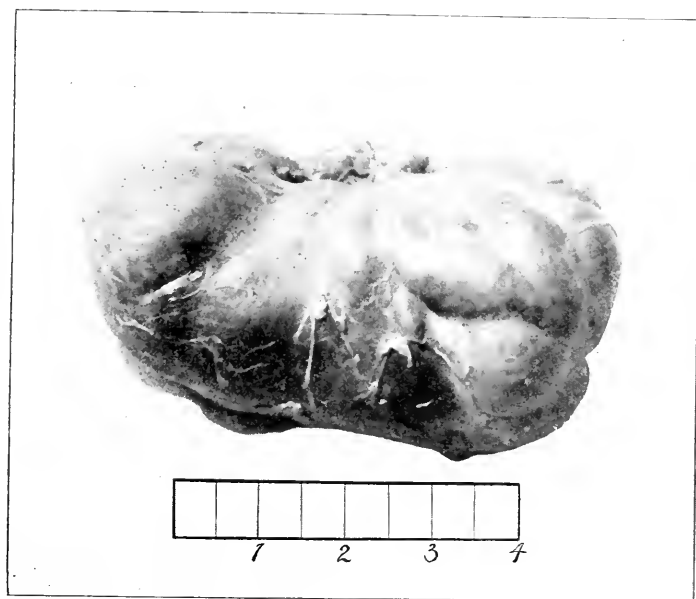


FIG. 1.—Cyst of right kidney; abdominal nephrectomy.

considerable difficulty. Enucleation was finally accomplished and the pedicle tied with silk and removed, separate ligatures being used for the ureter. A large cavity remained, and the peritoneum which had been excised was dropped down into the cavity. As the peritoneum seemed to come together naturally, no stitches were used. The abdominal cavity was not irrigated, as very little blood was lost during the operation, and no drainage tube was used. The abdominal incision was closed with catgut for the peritoneum, buried interrupted silkworm-gut sutures for the fascia, and catgut for the muscles and skin. The incision was long, as it had to be enlarged until it reached the border of the ribs. To guard against a subsequent hernia the method described was employed. The patient made an unin-

errupted convalescence. The wound healed by first intention. The following is the report of the pathologist:

Pathological report by Dr. J. B. Whinery, Grand Rapids, Michigan.—"The specimen is a fluctuating, lobulated, kidney-shaped tumor. The length is six inches, the breadth four inches, the weight one pound. The surface is smooth and shows no evidence of any inflammatory action. On palpation calculi ranging in size from a grain of sand to a pea or a little larger can be detected. The calculi are scattered through different parts of the tumor. On making an incision into the mass twelve ounces of a brownish-colored liquid escaped. No



FIG. 2.—Cystic kidney laid open. I, calculus in mouth of ureter.

chemical or microscopical examination of the liquid was made, on account of the tumor having been in a preserving fluid for some time and the likelihood of osmosis having taken place. Most of the kidney structure had disappeared, and there remained only pouches separated from each other by septa of fibrous tissue. In these pouches free calculi were found, about two dozen in all, some of a dark clay-colored appearance, others of a dark brown. A thin crust of crystals covered a few of the calculi. Firmly embedded in the mouth of the ureter was a dark-brown calculus, the size of a hazelnut, completely occluding the lumen and preventing the passage of urine. Of the

kidney structure only a small portion, varying in thickness from a mere shell to three-quarters of an inch, was left. Microscopical examination of this remaining kidney structure revealed atrophy and a functionless condition of the secretory elements."

The specimen is unique because one calculus was situated at the mouth of the ureter and effectually prevented the passage of the urine from the kidney into the ureter. The small calculi which I show here were scattered through the sacculated portion of the kidney. It is interesting, from an etiological point of view, to consider whether this hydronephrosis could have been due to traumatism or whether it was due to calculi. From the obscure history of the case it would look as if the fall were a coincidence and that the calculi produced the hydronephrosis. These small calculi may have been in the kidney for some time and may have caused the frequent discharges of blood. The larger calculus finally lodged in the mouth of the ureter, became firmly attached, and produced the hydronephrosis.

EXHIBITION OF SPECIMEN OF NECROTIC UTERUS CONTAINING
SLOUGHING SUBMUCOUS FIBROID; GANGRENOUS INTESTINAL
ADHESION; OPERATION; RECOVERY.

DR. T. J. WATKINS.—This specimen is a necrotic uterus which contains a sloughing submucous fibroid. Attached near the fundus of the uterus was a very firm adhesion which extended to the mesentery of the small intestines and which had become gangrenous. The intestine above the attachment of the adhesion was very much distended, probably parietic, and inflamed. The intestine below the adhesion appeared perfectly normal. The patient from whom this specimen was removed was perfectly well until five days before the operation was performed, when she was suddenly taken with nausea, persistent vomiting, and pain across the abdomen. The vomiting, twenty-four hours before the operation, became stercoraceous; absolute obstruction to the bowels, however, did not occur, but the feces probably came from the intestine below the adhesion. As much of the gangrenous adhesion as possible was excised and abdominal hysterectomy performed. Gauze drainage was used, and the patient made an uninterrupted recovery. The uterine canal was completely obstructed by the sloughing intramural fibroid, which had caused amenorrhea for some months.

EXHIBITION OF SPECIMENS.

I. PAROVARIAN CYST CONTAINING PAPILLOMATA.

DR. HENRY T. BYFORD.—The first specimen is a parovarian cyst, so-called, containing papillomata which grew neither from the portion of the ovary near the hilum nor from the parovarium, but from under the tube. The Fallopian tube crosses the whole tumor, and on one side of the tumor is located the normal par-

ovarian body with its tubules, which can be sufficiently seen to show its exact shape. The specimen is an exact resemblance to some Kosman has described, on the sides of which are two accessory ostia or tubes. He claims the tumor is a portion of the Fallopian tube, either an accessory tube or an evaginated portion of the tube. He believes that the papillomatous developments in these broad-ligament tumors are from the tube, and are only to be found in those structures which contain the mucous membrane of the tube. Both ovaries were removed, and the distance of the ovary from the cyst would make it almost impossible for the tumor to have originated in the hilum of the ovary.

II. FIBROID UTERUS CONTAINING A FETUS.

The next specimen is a pregnant fibroid tumor of the uterus. I exhibit it to illustrate the almost impossible conditions under which pregnancy will occur. The fetus is high up inside of a large mass of tumors, and below it, beside it, underneath it, in front of it, and all around it are the tumors.

III. UTERUS REMOVED BY VAGINAL HYSTERECTOMY PRELIMINARY TO REMOVAL OF A LARGE SUBPERITONEAL OVARIAN TUMOR.

This specimen was removed by vaginal hysterectomy for the purpose of enabling me to enucleate a large subperitoneal ovarian tumor. The patient had not had a child for about twenty years; a miscarriage ten or twelve years ago; pelvic disease for a long time, which was undoubtedly the result of salpingitis. One year after the menopause uterine hemorrhages commenced; she also had a large watery discharge which would saturate a number of large napkins every day. About this time she commenced to have pain and a tumor was found behind the uterus. After watching the case for three months I suspected the tumor to be a hematoma; aspirated and got a thin, bloody fluid similar to the discharge from the uterus. After aspiration the pain and the flow stopped. The tumor filled again and the flow from the uterus commenced. Examination shows congestion of the endometrium, which is the usual result of these tumors of the broad ligament. As this woman had had pelvic inflammation for fifteen or twenty years, and as the tumor was bound down in the pelvis, I was afraid to operate through the abdomen, and therefore concluded to operate through the vagina. I removed the uterus, evacuated two cysts, and scooped out, rather imperfectly, the lining membrane of the tumors. It is now about four weeks since the operation, and the opening in the vagina is closed the same as after vaginal hysterectomy.

IV. FETUS, UTERUS, AND PLACENTA REMOVED TWO DAYS AFTER ATTEMPTED ABORTION.

This is an interesting specimen of a four months' old fetus, uterus, and placenta removed two days after an attempt at abor-

tion, at which time the uterus was perforated and the fetus and placenta extruded into the peritoneal cavity and remained there two days. When I saw the patient her temperature in the morning was 101° , pulse 90; in the afternoon, temperature 102° , pulse 120 and more or less thready. General peritonitis with abdominal distention developed rapidly. The opening in the posterior part of the uterus is now more or less contracted, but is still nearly two inches long. In performing the operation by vaginal section I cut the uterus in the centre and was going to employ morcellement, but I found the uterus so very flexible that I merely divided it in the centre almost to the fundus and had no trouble in getting it down and putting forceps on the broad ligaments. It made really an easy operation, considering that in the pelvis I found this fetus which had been eviscerated. I found quite a hematoma posterior to the uterus, about the remains of the placenta. The right ovary and tube were removed. About two weeks after the operation a slight phlebitis developed which caused a slight soreness and swelling in the left limb, but which has now, four weeks after the operation, disappeared.

EXHIBITION OF SPECIMEN OF CYST OF THE OVARY, TUBE, AND BROAD LIGAMENT.

DR. J. A. LYONS.—This specimen I removed nine days ago by abdominal section. I saw this patient four days previous to the operation, when she complained of severe pain in the left ovarian region. Examination revealed a tumor half the size of a child's head; the uterus was displaced to the right.

As I had occasionally treated the patient for several years for pelvic disease, I was aware that the left ovary was diseased. About seven months ago she miscarried at about the fourth month of gestation, and since then she has had a severe attack of gonorrhea. I therefore concluded that the case was septic. After opening the abdominal cavity, and after separating some adhesions on the left side, I found a cyst that not only involved the tube and ovary, but also the entire broad ligament and a portion of the lateral wall of the uterus. An inflammatory action must evidently have taken place, attaching the ovary to the uterus and to the broad ligament. The cystic ovary had discharged its contents into the broad ligament. After enucleation of the cyst I had to fold the broad ligament upon itself and to quilt it together to control hemorrhage. For fear of hemorrhage I used a glass drainage tube, which was removed eight hours after the operation. The right ovary and tube were inflamed, and on the right side was a small parovarian cyst; these were removed. I removed the stitches yesterday and the wound has healed perfectly. The deep sutures measured about six inches, which demonstrates the exceptionally thick abdominal wall.¹

¹ The patient developed a severe attack of pleurisy on the twelfth day, from which, however, she has entirely recovered and is now up and about her room.

It is somewhat difficult to say for a certainty just where these compound tumors originate. I am inclined to think, however, this one originated in the ovary and is of the follicular variety described by Rokitansky and ably discussed by Pozzi. One of the follicles discharges into the broad ligament and another into the tube, both ends of which were obstructed by a previous inflammation.

DR. A. W. JOHNSTONE read a paper entitled

THE RELATION OF MENSTRUATION TO THE OTHER REPRODUCTIVE FUNCTIONS.¹

DR. BYRON ROBINSON.—The relation of menstruation to other reproductive functions, so far as I understand the subject, resolves itself into the simple question whether menstruation and ovulation are separate or combined in man.

To demonstrate that menstruation and ovulation are divorced in man one must pursue comparative methods of study, as is required to comprehend the structure of the peritoneum. The genitals in the lowest organisms are very simple and do not demand sexual congress. The lowest observed definite genitals consist of holes in the body, out of which ova are extruded. From this genital apparatus arise the ovary, Fallopian tube, and uterus, the three final divisions of man's genitals. To realize some of the radical evolutionary stages involved in the development from simple peritoneal pores to the ovary, duct, and uterus, one need only mention some of the changes which any one can observe in the radical changes found in the Wolffian body and the vermiform appendix—an appendix which is no doubt a remnant of a herbivorous stomach and is fast passing out of existence. No organs have so demonstrably changed by evolution as the genito-urinary. The animal of low development started with a pronephros and a duct. The pronephros has long ago disappeared in man, but the duct still remains to carry semen in man and eggs in woman.

The second evolutionary change relates to the mesonephros, which serves to secrete and carry off urine for several weeks in man. The whole mesonephros shrinks in woman to the parovarium, and in man it disappears.

The third evolutionary change is the introduction of a kidney and duct. The two tubes coalesce in the centre to form a gestation sac. In the bird one side of the whole genital apparatus is lost by atrophy. To all this change in structure and function is added in woman a periodic function known as menstruation. The oviduct gradually separates from the ovary in the ascending scale of animal life, and the number of young at each birth diminishes. In most fishes there is no oviduct; only pores exist,

¹ See original article, p. 33.

out of which the numerous eggs are expelled. The same pores exist in crocodiles. Frogs are but little higher, and in them sexual congress begins with their new-born "clasper."

The bird has an advanced development of sexual organs and is the first animal to protect its young outside the body—*e.g.*, setting, hatching, and feeding. As the scale of animal life ascends the organs of copulation assume more definite form. The appendages remain double, the uterus coalesces and remains single. Ovulation and its discharge, manifested by what the breeders of animals call rut, becomes periodic and sexual congress varies with it, depending upon the nature of the lives and the character of the seasons. Estrus, or rut, governs ovulation; menstruation influences and hastens ovulation by congestion and by nutrition. Menstruation is not caused by ovulation, but menstruation is the method the uterus takes to prepare a nest for the egg.

Menstruation gets an egg into the nest by peristalsis of the tube; by waving cilia, causing fluid currents which float the egg; by contraction of the fimbriated muscles, causing a tubal mouth to circumscribe an area on the ovary over a ripening Graafian follicle—a mechanism analogous to the batrachian conjugation clasper. The glandular nest in the uterus is built to fertilize the coming ovum. Ovulation is continuous before birth, and lasts after birth until the ovarian tissue is worn out. I have found ovulation in animals and man before birth.

The structure and function of the genitals must yield to the necessities of animal life. Reproductive organs must accommodate their functions to circumstances. They must conform to seasons and must vary with food supply. Environments of life dictate methods of existence and bend functions to its mandates. In the higher animals the functions become more definite. The uterus gestates and expels periodically a fetus; the Fallopian tubes transmit the ova.

Menstruation is confined practically in women to the uterus and tubes. Ovulation is apt to occur at the menstrual period simply because of congestion. In estrus, or rut, the vulvar, mammary, and the other glandular structures participate in the function. In women this occurs in menstruation, but not in ovulation. Man's upright attitude has no doubt changed structure and function of the reproductive organs. The change of structure is in the thickened walls of the uterus, and also in the stiff, short, centralized uterus with horizontal tubes.

The cause of the divorce of menstruation and ovulation may also be looked for in the nervous system. For the higher in development the nervous system is, the more complex and definite are the genitals. The greater in development an animal's brain is, the more thought is directed to the genitals, as illustrated in monkey and man. The peripheral nervous system of the genitals is more highly developed in man than in any other animal. Excessive thought applied to the genitals is capable of

changing their structures and functions. Excessive thought, manipulation, and cohabitation has no doubt modified the relation of the reproductive functions. The lower animals cohabit in definite seasons and periods, at the time of estrus or rut, and thus tend to perpetuate the relations of the reproductive functions; the higher animals cohabit in season and out of season, and hence tend to disturb these relations.

Menstruation is a function of the uterus and tubes, and is periodic, cyclical, and rhythmical. It begins at puberty and ends at the menopause. It is a blood wave originated by the nervous system. It is governed by what I originally termed the automatic menstrual ganglia, situated in the walls of the tubes and uterus, and is analogous to Auerbach's and Meissner's automatic ganglia of the digestive tract or to the automatic cardiac ganglia of Lee and Pettigrew.

Ovulation is a continuous, progressive process, beginning before birth and ending with worn-out ovarian tissue.

Some of the arguments which demonstrate that menstruation and ovulation are independent functions:

1. Ovulation occurs before birth in man and in other animals.
2. Women menstruate who possess ovaries totally incapable of ovulating from disease.
3. Menstruation frequently continues after removal of the ovaries.
4. Menstruation is not required for the ripening and discharge of ovules.
6. So far as I can observe, the pig ovulates continually, progressively, but the chief bulk of the ovules ripen at rut, or estrus.
7. Sufficient evidence exists, I think, to show that no follicle ruptures at many of the menstrual rhythms.
8. Women can become pregnant who do not menstruate.
9. If ovulation and menstruation occurred coincidently, copulation by healthy parties immediately after menstruation would inevitably be more frequently followed by pregnancy.
10. Ovulation in a modified form proceeds during pregnancy.

I have never been able to observe how often an ovule ripens and ruptures or how much time an ovule requires to grow. The nervous system and nutrition no doubt must be perfect to have ovulation, for tubercular girls and fat girls do not ovulate. I have carefully looked for Johnstone's nerve, which my honored teacher, Mr. Tait, announces in his book as the governor of menstruation, and have never been able to find it, although I have looked for it fifty or sixty times. I have found scores of times a chain of ganglia with nerves extending from the cervical plexus to the uterine canal. I do not think that one single nerve governs menstruation. I am inclined to believe that the automatic menstrual ganglia govern the tubes and uterus.

I am very glad to have met Dr. Johnstone, whose work I have

been interested in since 1887, and I am very much pleased with his paper.

DR. E. C. DUDLEY.—I have very little to add to what has already been said by the previous speakers. In 1886 I happened to be in Birmingham at the time Dr. Johnstone was making his investigations on this subject, and at that time I did not fail to note the great earnestness of the doctor in his work, and I am not surprised that this seriousness has resulted in a great deal of information. I have had some doubt, but not so much now, as to the relation between the lymphoid cells and the epithelium of the endometrium. I had supposed until lately that the lymph cells belonged to the mesoblast and the epithelial cells to the epiblast. That being the case, for reasons perfectly apparent, the epithelial cells could not develop from the lymphoid cells. This process would not be consistent with previous notions of embryology. I am inclined to think the doctor's explanation of the subject is clear and accurate. If the epiblast and hypoblast are concerned in the development of the mesoblast, then it is easy to see that the columnar epithelial cells may develop from the lymph cells. The old idea that each menstruation results in the shedding of the entire endometrium is very easily and satisfactorily disproved by Dr. Johnstone's investigations. He himself makes an epigrammatic statement somewhere that if the human female first destroys her nest and then lays in it she must be a grand exception to all other females of the entire animal kingdom. That one epigrammatic expression, it seems to me, almost settles the question as to the entire shedding of the endometrium, and leads us to believe that only the superficial layers are shed.

I think there is a practical lesson to be learned from the researches of Dr. Johnstone. The epithelial cells may transmit infection from the uterus to the peritoneal cavity. In the vast majority, certainly, if not in all cases of inflammation, the infection is transmitted through the epithelial cells, the infection reaches the lymph elements beneath, which are in anatomical and physiological relation with the lymph spaces, the lymphoids of the endometrium, and the muscles and peritoneum of the uterus. Route by the lymph spaces and lymphatics from the endometrium to the peritoneum is short and direct, and one can readily see how infection, once having occurred in the uterus, can swiftly destroy the life of the patient. I think the doctor's investigations throw some light on the phenomena of rapidly fatal puerperal infection, which is undoubtedly almost always due to the streptococcus. The fact that lymph tissue does not exist in the cervix explains why pregnancy does not occur in there, as lymph elements are required to nourish an ovum. Dr. Johnstone has brought out a very interesting and practical point, in a previous paper, relative to the lymph structure in the tube and tubal pregnancy. Pregnancy usually oc-

curs in the uterus; the ovum grows upon these lymphoid elements, and generally when the epithelial elements have been cast off and perhaps partially restored; at any rate, it is evident that this nest is best adapted to receive and nourish the impregnated ovum when it consists of freshly developed lymph cells. These lymph cells are present in some degree in the Fallopian tubes, and one might perhaps think that tubal pregnancy would occur as often as uterine pregnancy; but Dr. Johnstone has called attention to the fact that tubal pregnancy does not occur as frequently as uterine pregnancy, because the epithelial elements of the tubes, which are anatomically much like the epithelial cells in the uterus, are not shed in menstruation. When tubal pregnancy does occur it is evidence that there has been destruction to a greater or less extent of the epithelial elements in the tube—that is, the lymph elements have been laid bare by disease. I have been very much interested in Dr. Johnstone's paper and have no word of criticism to offer. It is apparently all right and will probably, as a whole, stand the test of the future.

DR. J. T. BINKLEY.—I would like to ask Dr. Johnstone if he has observed any changes in the rut season in the deer when domesticated and when well fed.

As I understand, Dr. Johnstone endeavors especially to demonstrate that lymph cells reproduce the epithelial cells of the endometrium, and also that no associated action exists between ovulation and menstruation. I am unable to see what connection the remarks of the last speaker, relative to the method of germ transmission through the lymph spaces, have to the paper.

DR. A. W. JOHNSTONE, in closing the discussion, said: I must thank you for letting me off so easy. I realize this paper is revolutionary, and I have purposely held it in abeyance, for I did not think our country ready to accept it. I tried it on the British Medical Association three or four years ago, but it was either beyond their comprehension or beneath their notice. I have been working on this subject for a long, long time. The laboratory teaches us that the body has a dual existence, but we know that it has not. The body, however, is not like cast iron; the tissues are not intended to last forever, for they have to be repaired. The old idea that the body is renewed every seven years has some value, because a constant waste occurs. From whence comes the tissue for repair? What supplies the waste of cells? I believe it comes from the hyaline layer which I have described. I do not know whether the hyaline layer is made from the epiblast or elsewhere, but I am certain of its existence. Embryologists teach that it comes from the mesoblast. It is shown in the drawings, and is given the name hyaline because sometimes it is translucent.

The best article I know of on the rhythm of menstruation and ovulation was written by Dr. Annie Clark, who gives very careful statistics and percentages gathered from the study of a large number of specimens. She estimates that the average

woman ovulates four to five times each year. Mr. Walter Heape examined forty monkeys that menstruated and found only two ova that had just ruptured. This experience coincides with the experience of nearly all operators. I believe the reason why conception is more apt to occur at the time of menstruation is that, if an egg is nearly ripe at this time, a rich field of protoplasm exists after menstruation which readily nourishes the ovum. For the first three months of gestation all that is necessary is to have lymph for the ovum to float in, and, as Dr. Dudley has said in reference to the pathological condition of a tube in extrauterine pregnancy, the tube must be one that will produce lymph. You will remember that wonderful case reported by some German surgeon, who did a complete hysterectomy, removed both Fallopian tubes, but left a little piece of ovary. To his horror, in a couple of years the woman developed pregnancy in the abdomen and died. Pregnancy can occur wherever a properly fecundated ovum has lymph for nutriment.

I thank you for the courteous way in which you have received this paper, and I hope some of the younger men of this Society may be stimulated to help me in the study of this subject, for you know art is long and the lifetime of one man is not long enough to work out the entire subject.

DR. DUDLEY.—I would ask if these lymph cells are always developed by gradation and never by segregation.

DR. JOHNSTONE.—Yes, that is my idea. One of my charts shows the gradation of these little granulations in the ovary. A separation of the nucleus occurs, which develops into little triangular bodies and becomes mature cells. The lymph cells are phagocytes, and if they once get infected and pass through the lymphatic channels into the peritoneal cavity trouble results.

Official Transactions.

T. J. WATKINS,
Editor.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of April 18th, 1895.

CHARLES B. PENROSE, M.D., *in the Chair.*

DR. BARTON C. HIRST reported clinical cases :

A LARGE FIBROMA OF THE OVARIAN LIGAMENT ; COINCIDENT OVARIAN AND PAROVARIAN CYSTS ; AND REPORT OF A CESAREAN SECTION AND OF TWO SYMPHYSEOTOMIES.¹

THE CHAIRMAN.—I think that the specimen presented by Dr. Hirst of a coincident ovarian and parovarian cyst represents an

¹ See original article, p. 63.

inflammatory condition. The ovarian cyst seems to me to be a simple inflammatory follicular cyst of the ovary. A condition of this kind is not unusual, though a coincident oöphoritic cyst of unlimited growth with parovarian cyst must be a very uncommon occurrence.

DR. J. M. BALDY said that he would be loath to accept the specimen as one of an ovarian cyst distinct from a parovarian cyst. Only a microscopical examination could decide this. He had never seen the two conditions existing together, and would like to learn the result of a careful microscopical examination of the specimen. The gross appearance of the specimen would indicate to his mind that both cysts originated from the ovary.

DR. ROBERT H. HAMILL reported

A CASE OF MYELITIS FOLLOWING LABOR; DEATH; AUTOPSY.

The object of my reporting to you this evening the following case is with the hope that I may learn from some of the Fellows the probable cause of the myelitis, and from the fact of its rare occurrence, as I have not been able to find, after a thorough search, another recorded case. I found many cases of hemi- and paraplegia, but from other causes entirely. I shall give a rather full history, so that we may be the better able to ascertain whether any of her complications have any bearing upon the case. Mrs. H., æt. 32, of German birth; primipara. Family history negative; mother living; father died of diabetes; brothers and sisters all living. She had always been remarkably strong and healthy. During her fifth month of pregnancy she reported to me. Pregnancy had been in every way normal. Her urine was examined at this time and each successive month, with negative results.

At the beginning of her seventh month I found the urine normal, which was on the 2d of January, 1894. Eighteen days after I was sent for, and found her with very marked general edema, particularly of the genitalia, which were the size of a large cocoanut; marked cephalic pains; urine half its bulk in albumin; microscopic examination failed to detect any casts. On the following morning, while making preparations for the induction of premature labor, she had a most terrific convulsion, followed at short intervals by four more as severe. An effort was made to induce labor by means of the insertion of bougies, but without sufficient rapidity, when sterile glycerin was injected into the cavity of the uterus with the result of vigorous contractions being produced in less than two hours. Labor proceeded normally, and she was delivered of twins weighing respectively three and three and three-quarter pounds. The children were living and are to-day very healthy specimens. Her labor was naturally an easy one owing to the small size of the children. I applied the forceps for the extraction of the

second child, as there was a complete cessation of uterine contractions. A careful examination showed the perineum intact, no abrasions in vagina, and no cervical tear. The edema disappeared very rapidly and her convalescence was uneventful, temperature after first few hours never going above 100° until the fourteenth day of the puerperium. An examination of the urine the fourth day after labor showed a marked decrease in amount of albumin, and no trace of it could be found on the tenth day.

On the fourteenth day I saw the patient and found that she had passed an uncomfortable night, owing to the fact that she had been unable to void her urine for the past eighteen or twenty hours. The catheter was used and a large amount was drawn. She then expressed herself as feeling very comfortable. This procedure had to be repeated at proper intervals until her death. On the following day she complained of dull pains and numbness, beginning in the lumbar region and radiating into her thighs. I made a vaginal examination with absolutely negative results. On the sixteenth day there was a decided loss of sensation and motion in the left leg, which rapidly increased in area and intensity. In the evening of the same day the right leg became markedly affected in the same manner, the anesthesia extending over the abdomen to midway between the umbilicus and diaphragm, the other parts of the abdomen and chest becoming hyperesthetic. The line dividing the affected from the unaffected portion was sharply drawn. Both arms became paralyzed on the seventeenth day and there was very marked stiffness of the cervical muscles. She was obstinately constipated, knee jerks absent, and died in coma on the nineteenth day after labor and the fifth from the onset of the myelitis. I shall only speak of the post-mortem condition of the pelvic organs, as Dr. Burr has kindly consented to give a full report. They were perfectly normal; involution had been exceptionally perfect, and not a trace of any inflammatory process could be found. A close examination of the vagina showed no abrasions or tears—in short, there were no signs whatever of sepsis.

The interesting features of the case appear to be:

1. The sudden appearance of the kidney complication.
2. The fact that both children were living, as about fifty per cent are still-born in eclamptic cases.
3. The complication of the myelitis.

I feel that any reason which may be given as the cause of the myelitis must be greatly conjectural. I can conceive that a colony of microbes could easily enter the patulous os, and, not finding lodgment, be carried almost anywhere. Or it may be possible that the germs may have been introduced by the glycerin, which I do not think at all probable, as I was sure of its sterility. I am forced to the conclusion that pregnancy or labor

was not a causative factor, but must look upon it as a mere coincident.

DR. CHARLES W. BURR.—The post-mortem examination of this case completely verified the clinical diagnosis. There was an acute, diffuse, hemorrhagic, transverse myelitis, the lower dorsal and upper lumbar region of the cord being the part most and primarily affected. In this region the blood vessels, especially in the posterior columns, were engorged with blood; there were several microscopic hemorrhages; the nerve fibres had disappeared entirely; the cells in the anterior gray matter were swollen and shapeless. Above and below there was destruction of the nervous tissue without serious vascular involvement. The pia was but slightly affected. I shall not detain you with details of histological morbid anatomy, however, since the question of interest to this Society is the causation of the myelitis and the possible bearing upon it of the puerperal state. All the common causes of myelitis are absent. There was no bone disease, no preceding acute infectious fever. Bright's disease is out of the question, since histological examination showed the kidneys to be practically normal. The most frequent cause of paralysis in the puerperal state, barring, of course, the sudden cerebral palsies due to hemorrhage, thrombosis, or embolism, is neuritis. In this case there was no post-mortem evidence of neuritis. The history of the case and the post-mortem results prevent us from regarding puerperal septicemia as the cause. The palsy developed on the fourteenth day of a normal lying-in period, and the autopsy gave no evidence of any septic process in any of the pelvic or, indeed, other organs. It is interesting that Dr. J. H. W. Rhein, who made a careful search of the literature for me, could find no similar case—no case of an acute myelitis, verified post mortem, occurring in a woman soon after childbirth with or without puerperal septicemia. I am compelled, taking all things in consideration, to regard the myelitis purely as a coincident complication. In a year so many women are bound to get myelitis and so many to have children, and once in a great while, since pregnancy is certainly not a preventive of myelitis, one woman must have both and at the same time. In one way the puerperal condition may have been causative. This myelitis was probably mycotic, and the microbes may have obtained entrance to the body by way of the womb, leaving no local evidence of their transit. This is unproved and unprovable.

DR. BARTON C. HIRST said that he was much interested in this case, and after looking up the literature of the subject in a rather cursory way he had been unable to find a report anywhere and regarded this as a unique case. He considered the condition as possibly produced by an extension of inflammation from the sacral plexus to the spinal cord. Every obstetrician is aware that such inflammation affects the lumbo-sacral plexus, and there

is no reason why it should not more frequently extend upward to the spinal cord.

Dr. JOHN B. SHOBER reported

A CASE OF DOUBLE TUBO-OVARIAN ABSCESS; CELIOTOMY.¹

Dr. HIRST asked the Chairman his rule of practice in dealing with tuberculous pyosalpinx when coexisting with tubercular peritonitis. Greig Smith thinks it poor practice in such a case to drop a raw stump back into such a cavity, where it is almost certain to become infected. Dr. Hirst had such a case himself, however, in which he removed a pyosalpinx from an abdominal cavity the seat of diffuse tubercular peritonitis. The patient recovered. .

THE CHAIRMAN said that in the spring of 1894 he had performed celiotomy upon a woman, and had found a tubo-ovarian tumor about the size of a duck egg upon the right side and tuberculosis of the peritoneum. The peritoneum, parietal and intestinal, as far as examined was covered with small, well-formed tubercles, and there was a small amount of free fluid in the peritoneal cavity. The tubes and ovaries and uterus were removed and the abdomen closed without drainage. The patient had an uninterrupted recovery and immediately began to gain weight, and eight months after the operation was in perfect health.

TRANSACTIONS OF THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, March 28th, 1895.

HENRY C. COE, M.D., *Chairman.*

SPECIMENS FROM A CASE OF SEPSIS FOLLOWING ABORTION.

Dr. S. MARX presented the uterus and vagina of a young woman who had died of sepsis following criminal abortion induced by a midwife about the fourth month of pregnancy. Dr. Marx had been called to the case about the fifth day. It was evident that there was acute general peritonitis and that laparotomy would be useless, the patient being near death. The interesting point connected with the specimens was their freedom from detritus and their healthy appearance. In the abdomen, however, there were collections of pus everywhere, even as

¹ See original article, p. 71.

far up as the liver. The tubes and ovaries were normal; there was a corpus luteum of pregnancy. It was a case of true lymphatic septicemia.

DR. COE remarked that anatomically it was very difficult to prove criminal abortion.

DR. W. R. PRYOR mentioned a similar case, differing in the fact, however, that the direct cause of death was ulcerative endocarditis in which the streptococcus was found.

MALFORMED FETUS.

DR. F. H. STUART presented a fetus, born dead about term, from a young woman who had given birth to one other normal child. The fetus exhibited was malformed in several respects, presenting a spina bifida, the labia minora and clitoris lower than normal, absence of one thumb, partial development of the other, webbing of the fingers, a condition of varus in both hands and feet.

DR. GARRIGUES said it was quite common to see other deformities in cases of spina bifida.

THE PHYSIOLOGICAL EFFECT AND GENERAL THERAPEUTIC ACTION OF PERIODIC INDUCED CURRENTS IN GYNECOLOGY.

DR. AUGUSTIN H. GOELET read the paper. Periodic induced currents included the faradic or interrupted induced, the alternating, and the static induced currents. The alternating and static induced currents were similar in their action to the faradic current derived from the secondary coil of long wire, being high-tension currents, or currents possessed of a high degree of electromotor force and an almost inappreciable volume of ampèreage. As ordinarily employed they were currents of high frequency, and in many of the most essential features the effects produced were the same. But they differed widely from the faradic current derived from the secondary coil of short coarse wire. The latter was a current of much lower electromotor force and very considerable volume of ampèreage compared with the high-tension currents already mentioned, and its action was entirely different and could not be supplanted by them.

The faradic current could be regarded as practically an interrupted induced current, a current of one direction endowed with polarity; for while it appeared to be alternating through low resistances, yet in the human subject only the break current was felt, being thirteen times stronger in electromotor force than the make current. That this current exerted an electrolytic action was shown by inserting the electrodes terminating in fine platinum wire into a solution of starch containing some iodide of potassium. The current produced a discoloration at one pole, due to the formation of iodide of starch.

But the electrolytic action was so slight that it might be dis-

regarded except in its effect upon the nerves, diminishing functional activity when passing against the direction of the nerve current, and increasing it when going with the nerve current. In this respect the interrupted induced current possessed an advantage over the alternating, which was being constantly reversed and had no polarity.

In considering the comparative ampère and electromotor force of the long and short wires, it was to be observed that the stimulating property of the currents depended upon their volume, which in the case of the faradic current could be varied by changing the length and size of the secondary coil, the short coarse wire having less internal resistance and greater volume, the long fine wire having greater internal resistance, less volume, but greater electromotor force. The cheaper forms of faradic apparatus were practically worthless, having but one length of wire. The modern induction apparatus was so constructed as to give ten different currents from as many different lengths and three sizes of wire, and afforded great variation in the quality of the current. In this regard it was also superior to the alternating and static induced currents derived from machines as now constructed.

The most noticeable effect of periodic induced currents was a muscle, nerve, and circulatory stimulation. The degree and nature of this stimulation depended upon the electromotor force and ampère and the number of interruptions. In the faradic apparatus the stimulation of the current was governed by the length and size of the wire composing the secondary coil, which regulated the electromotor force and ampère of the secondary current, the force of the primary current being constant or nearly so. The rapidity of the interruptions was controlled by the automatic vibrator in the primary current. The advantage of a number of secondary coils having different lengths of the same wire and different sizes of wire was that the stimulating property of the current might be conveniently and gradually increased as desired.

In the alternating machine now on the market the windings were all the same, hence the stimulating property of the current, which was a secondary, depended upon the strength of the current supplied to the primary fields. The electromotor force and rapidity of the alternations as well were increased by increasing the speed of the machine—*i.e.*, by increasing the revolutions of the armature or revolving disc. The volume of the current could not be greatly varied.

In the static induced current the size of the Leyden jars regulated the volume of the discharge, and the air gap between the discharging rods regulated the rapidity of the impulses.

The effect of the short coarse wire in the faradic machine was to produce muscle stimulation, of the long fine wire to produce nerve stimulation. They markedly influenced tissue

change. The following explanation was offered: 1. By exciting an increased vermicular contraction of the smaller arteries the blood pressure was augmented. This caused momentary distention of the capillary vessels, the reaction from which, owing to their elasticity, emptied them into the veins. In case of any obstruction in the capillary vessels this distention, together with blood pressure, favored its removal. 2. By stimulating contraction of adjacent muscles the veins were emptied and a void was created in their intervalvular spaces which invited the blood from the overloaded capillaries. Increased activity of the lymphatics was brought about by stimulating absorption and by the contraction of neighboring muscles, hastening the flow of lymph. As a result of this action upon the capillary circulation and lymphatics, pelvic congestion was relieved and rapid absorption of exudations was accomplished.

But perhaps the most important effect of periodic induced currents of high electromotor force and great frequency was the production of sedation and the relief of pain. They acted more especially upon the sensory nerves, and could be made to produce either irritation or sedation—the former when applied in strength sufficient to produce slight irritation, the latter when applied so as to be scarcely perceptible, the current being increased as insensitiveness became apparent. The former, the exciting effect, was desired in pelvic exudation with little sensitiveness; the latter, or sedative effect, where there was pain and an acute congestion. In the first instance five or ten minutes' application might suffice; in sedation fifteen or twenty minutes were necessary to produce a satisfactory result. The more rapid the interruptions the more soothing the effect. In using the coarse wire for muscle stimulation the interruptions should be slow, so as to allow alternate contraction and relaxation similar to the normal physiological action of the muscle.

For stimulation three sésances a week might be sufficient; for sedation one or more a day were required. As a therapeutic measure for the relief of pelvic pain and congestion, and pelvic inflammations and their results (infiltrations and exudations), this form of electricity was incomparably better than any other agent. It was often absolutely curative, although frequently it served only as an auxiliary to other measures. The coarse wire current was particularly serviceable where there was loss of muscular tone and venous engorgement, as in subinvolution, but it was contraindicated in sensitive and inflamed conditions.

Dr. Goelet had purposely laid more stress upon periodic currents of high frequency and high electromotor force, because they covered a larger field of usefulness. Hot water, which under the advocacy of Dr. Emmet had for so many years been our mainstay in pelvic diseases, sank into insignificance when compared with this current properly used. The trouble was

that, like the hot-water vaginal douche itself, it was so often misapplied.

THE EVOLUTION OF HYSTERECTOMY IN AMERICA.

DR. ERNEST W. CUSHING, of Boston, read a paper bearing this title.

Dr. Burnham, of Massachusetts, first removed the uterus successfully in this country in 1853, and was soon followed by Kimball, and the operation thus inaugurated by these gentlemen came to be known as an American procedure. On account of the great mortality there were few imitators for many years. About three patients in four died. When, however, one considered the fact that only the severest, the advanced cases were submitted to operation, and the further fact that antisepsis was not yet known, it would be seen that this mortality rate was not high. Death was due to sepsis and late operation. Burnham operated no more after 1876, and attention was turned chiefly to such measures as the cautery, injections of ergot, and removal of the ovaries.

Hysterectomy began to gain some in favor after the introduction of improvements in the treatment of the stump. Marcy described his method in 1881, and Dr. Cushing thought it was probably the best way of treating the pedicle until Stimson introduced ligation of the uterine artery in continuity about eight years later.

Mention was next made of the operation by Dr. Mary Dixon Jones, 1888, during which the vagina was opened. Bantock's visit to this country in 1887 led to almost universal adoption of his method here. The difficulty of applying it in cases of tumors deep in the pelvis was overcome by careful technique. It seemed so perfect that nothing further appeared to be required, yet since the introduction of Stimson's method of tying the uterine arteries in their continuity, in 1889, it had almost gone out of date. Some of the most eminent men in New York then at once abandoned the extraperitoneal method of treating the stump and also extended hysterectomy to other conditions. Eastman, in 1887, had already published his modification of Schröder's method. In October, 1891, Joseph Price had operated on two cases by opening into the posterior vaginal fornix and tying off the broad ligament by link suture, and had also passed up clamps from below, thus modifying and improving Jones' operation. Yet Price favored Bantock's operation, with which he had had an exceedingly small mortality. Polk and others had made efforts to get rid of clamps, and Kelly varied Martin's procedure by leaving the stump unseared, covered with peritoneum, unconstricted. But neither this nor Byford's method, which was next described, seemed to gain any general acceptance.

Mention was next made of the Dudley and Goffe method of

intra-abdominal by extraperitoneal treatment of the uterine stump, but the objection applied to it that in all the cases there was rise of temperature the third or fourth day, which required dilatation of the cervix. For this reason some had preferred to remove the cervix altogether, and others refrained from putting ligatures into the cervix.

The Trendelenburg posture had had an important influence on the application of hysterectomy, and to Dr. Krug chief credit was given for popularizing it in this country. Ever since the International Medical Congress in 1890 there was a feeling that a change was coming, but it was not until the meeting of the American Gynecological Society in 1892, after the reading of the papers of Polk and Baer, that the profession turned with almost dramatic suddenness from the extra-abdominal to the intra-abdominal treatment of the stump. Dr. Cushing used Dr. Polk's own words in the description of his procedure, which, in connection with the former paper of Dr. Stimson, had worked a revolution in practical hysterectomy. The further points of interest related to the extension of hysterectomy to cases of such extensive disease of the adnexa as to demand their removal, first advocated by Polk and supported by Krug, and lastly to choice of routes, the vaginal now being preferred by many in cases where formerly they had only practised the abdominal.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, November 2d, 1894.

The President, HENRY D. FRY, M.D., in the Chair.

DR. HENRY D. FRY presented a specimen of

SARCOMA OF THE UTERUS

and one of

TUBAL PREGNANCY,

both of which were successfully removed.

DR. H. L. E. JOHNSON presented an

OVARIAN TUMOR AND VERMIFORM APPENDIX REMOVED FROM
THE SAME PATIENT AT ONE OPERATION.

DR. JOSEPH TABER JOHNSON, in discussing Dr. H. L. E. Johnson's specimen, said the gynecologist should confine his work to the uterus and ovaries. He thought the doctor should not have

removed the appendix; he added an additional risk to his operation, which might have been bad for his statistics. He had been tempted himself to remove the appendix, and in a case in which there was a concretion he contented himself with squeezing out the mass and leaving the appendix.

DR. H. L. E. JOHNSON complimented Dr. Fry upon his diagnosis and successful operation in the case of tubal pregnancy.

DR. GEORGE N. ACKER said that Dr. H. L. E. Johnson should be commended for the removal of the appendix. He thought that Dr. J. T. Johnson did wrong in forcing the concretion out of the appendix, thereby leaving the opening patulous, and harm might follow.

DR. WILLIAM P. CARR read a paper entitled

OÖPHORECTOMY FOR FIBROID TUMORS OF THE UTERUS.¹

DR. JOSEPH TABER JOHNSON said he agreed with Dr. Carr as to the danger of fibroids and the fact that it was overlooked by physicians. It was stated in text books now in the hands of students that few deaths had occurred from fibroid tumors. Dr. Carr had explained how this occurred by stating that fibroids caused other conditions, which were assigned as the cause of death. Operators had started out to remove what were supposed to be healthy ovaries and tubes, in order to check the growth of the tumor; on opening the abdomen the ovaries and tubes were found to be diseased. As to the growth of fibroids after the menopause, he had read a paper upon that subject, and papers had been read by others, showing that where the menopause was not beneficial they usually grow more rapidly or degenerate. Dr. Carr was more radical than he would be. There were many who would not submit to an operation; in such cases palliative treatment, as ergot, potassium iodide, etc., might be tried. Electricity was the greatest humbug of the age, though in the hands of intelligent, expert men familiar with its administration it might do some good. In dealing with fibroid tumors any breaking of the capsule would necessitate its removal, on account of the consequent hemorrhage. A large tumor with adhesions would not be shrivelled by removal of ovaries and tubes. Small fibroids might be benefited, and sometimes soft ones were entirely cured, but the fast-growing and multi-fibroids would not be. The menopause does not always cure, hence the operation could not be relied upon. It was true the operation was less dangerous than hysterectomy, though the latter was no doubt the best. There was a class of cases in which it was advisable, as in the soft myomata without adhesions. To in any way meddle with a fibroid tumor by cutting into it was to be condemned; it would be much better to remove it entirely. He considered Baer's operation an admir-

¹ See original article, p. 81.

able one. There was sometimes great difficulty in finding the ovary, by reason of its being displaced by the tumor.

DR. H. L. E. JOHNSON said he was impressed with one point claimed by Dr. Carr—viz., that when both ovaries and tubes are removed the leaving of a small portion of ovary will be followed by regular menstruation. He had recently treated a patient who had been deprived of both tubes and ovaries, and, notwithstanding, she menstruated or flowed regularly. This flow became almost constant, and examination revealed a small uterus filled with villousities; these are to be removed at the hospital. Martin claims ligation of the tubes and ovaries to be superior to removal in some cases, and, further, that after ligation menstruation ceases and atrophy follows. Dr. Johnson gave the history of a case thus treated by himself.

DR. GEORGE N. ACKER asked, if adhesions be broken up, would they reform?

DR. W. P. CARR said that they would not; that the iodoform gauze would effectually prevent it. He said the object of his paper was to advise the operation for small tumors. Certainly in large tumors the difficulties would be great. He would not attempt to tear loose any extensive adhesions, and in such cases oöphorectomy would not do. The menstruation following the leaving a small portion of ovary might be a coincidence.

DR. H. D. FRY asked Dr. Carr, if he found a small fibroid which gave rise to no symptoms and was not suspected, would he advise removal of the ovaries?

DR. CARR said yes; that was the thing to be recommended.

Stated Meeting, Friday, November 16th, 1894.

The President, HENRY D. FRY, M.D., in the Chair.

DR. HENRY D. FRY presented a woman upon whom he had recently performed the modern eclectic

CESAREAN SECTION

(Sänger's method) because of necrotic disease of iliac bones. The child was living and the mother had entirely recovered from the operation.

Also a woman upon whom he had performed

SYMPHYSEOTOMY,

the conjugate being contracted to three and one-fifth inches. The bones had reunited.

DR. W. M. SPRIGG reported a case of

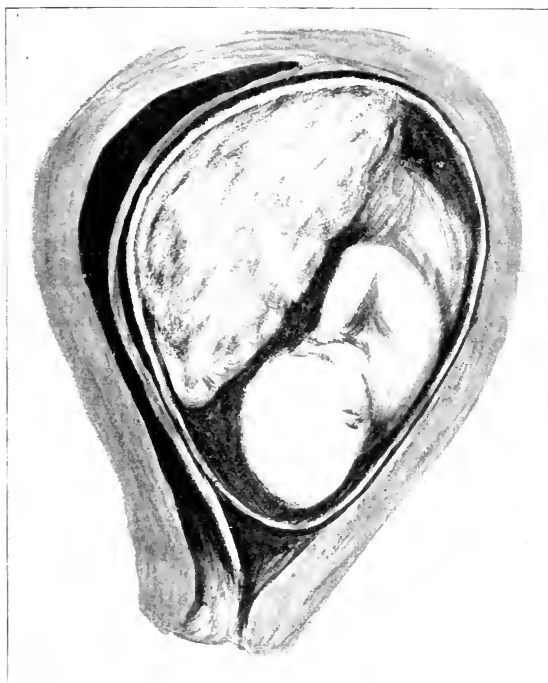
DOUBLE UTERUS AND DOUBLE VAGINA.¹

DR. W. P. CARR said the cause of double uterus is quite well

¹ See original article, p. 78.

understood, and, considering the fact that the uterus is developed from two tubes, it is strange that we do not oftener meet with this condition. It probably does occur, as Dr. Sprigg suggested, much oftener than we suppose, as it is a condition very likely to pass unnoticed even when women are under treatment for uterine disease. He had seen a case while resident in Columbia Hospital that he discovered accidentally after having treated the woman some time for endometritis.

The practical bearing of double uterus was well illustrated in a case he had recently seen in consultation with Dr. Eozier Mid-



dleton, of this city. The woman was in bed three weeks before sending for a physician. She then called Dr. Middleton, who found her with a temperature of 102° and an offensive discharge from the uterus, the uterus considerably enlarged.

He saw her with Dr. Middleton and was convinced that there was a dead and decomposing fetus in the uterus. The next day she was chloroformed, and after dilating the cervix he passed his finger into the uterus and could feel what seemed to be placental tissue quite plainly, but through a thick membrane. Thinking it was a case of tough membranes adherent to the side of the uterine cavity, he made vigorous efforts to separate

the supposed adhesions and to break through the membrane with his finger, but was unable to do so, and was very much puzzled and embarrassed, as was Dr. Middleton, who also examined the condition. He was on the point of abandoning any operation for a time, when, by a lucky accident, his finger slipped into the other side of what he then found to be a double uterus and came into contact with a dead and decomposing fetus. The fetus was then removed without any unusual difficulty, and the woman made a prompt recovery. The accompanying drawing illustrates the condition he found.

He thought it an interesting question, but one he was unable to answer, whether the double uterus was in any way responsible for the death of the fetus, and how much value was to be placed upon double uterus as an etiological factor in uterine catarrhs.

DR. H. L. E. JOHNSON said, in reply to a question, that he had not encountered a double uterus or double vagina at his clinic at the Columbia Hospital or Central Dispensary. Had several times seen a blind canal which simulated a rudimentary vagina.

DR. G. WYTHE COOK inquired if in those cases where menstruation continued during pregnancy it might not be due to the existence of a double uterus.

DR. S. C. BUSEY said he had never seen a case like the one reported by Dr. Sprigg, but last spring he had examined a young lady who presented the appearance of perfect development. The breasts were well rounded and the mons veneris was normal, but there was entire absence of the vulva, except the orifice for the urethra. There was no vicarious menstruation. He was unable to find any evidence of any generative organs. She was examined by three other medical men, neither of whom found any procreative organs. She was an intelligent, well-educated woman, who said she was as fond of men's company as most women were. He had examined a case of Dr. Harrison. She had a single shallow cul-de-sac. There were no generative organs discoverable, but she desired to get married.

DR. H. L. E. JOHNSON said that when a resident at Columbia Hospital he saw a case which resembled the one just mentioned, an Irishwoman 25 or 26 years of age, apparently perfectly developed, who had a vagina which did not communicate with any uterus. A number of physicians had examined her, who said she had no uterus. He examined her per rectum and bimanually and found a rudimentary uterus and ovaries. His diagnosis was confirmed by Drs. W. W. Johnston and George W. Johnston. She menstruated vicariously. The patient had consulted him because she desired to marry, and he believed she afterward did marry.

DR. WILLIAM M. SPRIGG, in closing the discussion, said that the question that most interested him was, what would be the probability of superfetation? The incontinence in this case was to be remedied by removal of the septum. In stretching the

septum the incontinence was partially relieved. It was a remarkable coincidence that the patient referred to by Dr. Busey was an intimate friend of his patient.

DR. J. FOSTER SCOTT inquired if it would be possible to break down the septum and convert the double organ into one.

DR. SPRIGG said he thought it was possible.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.¹

TWENTIETH ANNUAL MEETING, HELD IN BALTIMORE, MAY 28TH, 29TH,
AND 30TH, 1895.

MATTHEW D. MANN, M.D., *of Buffalo, President.*

LIGATURE OF THE PEDICLE WITH CATGUT.

DR. ARCHIBALD McLAREN, of St. Paul.—The catgut is cut in desirable lengths, wrapped in waxed paper, sealed in envelopes, and kept in a sterilizer at a temperature of 290° Fahrenheit for four hours. That the catgut is sterile when so prepared had been proven by numerous culture tests and by the uniformly favorable experience with it in the hands of his friends. Ordinarily the catgut is rendered too brittle by dry sterilization, but this objection does not apply to the method just described. One great advantage of it is that the envelopes can be carried in the pocket and yet the catgut maintain its sterility. The catgut is wrapped in waxed paper to prevent its being burned by the extreme heat to which it is subjected. Catgut may be prepared by the manufacturer according to this process, and can be relied upon even then, because there is no chance of the catgut becoming contaminated by being handled by incompetent persons.

One objection to non-absorbable material for pedicle ligatures, such as silk, is that, although perfectly sterile when introduced, it is liable to become infected subsequently.

In seventy-three abdominal sections in which nothing but catgut had been used there was no death which could be possibly ascribed to its use. I have found that fistulæ have closed more quickly and that the ultimate comfort of the patient has been much greater than is usual.

DR. A. P. DUDLEY said that catgut could be used with as much freedom as silk and without bad result. He had been using it since 1885 and had yet to see any mural abscess ascribable to it. He had used it in a great variety of abdominal cases and had not observed suppuration brought about by its use. He left the preparation of the catgut to those who were experts in this work. He did not think that catgut was safe as an inter-

¹ Continued from p. 924, June number.

rupted suture. A suture of this material should always be a continuous one.

DR. W. M. POLK said that the question of catgut *versus* silk was one which must arise from time to time. He would hail with delight any process which would enable him to safely use catgut. He had compared the results by doing one operation with silk and another with catgut. The cases in which he had used silk had done better than the others. Bacteriological examinations had failed to throw any light upon the cause of the trouble. The catgut had been prepared by Dr. Rice, the chemist of the Department of Charities and Correction, a chemist of wide reputation and very large experience in the preparation of catgut. This gentleman had told him that there were certain varieties of catgut which it did not seem possible to sterilize by any known method. This being the case, it did not seem wise to trust very much to this material.

THE PRESIDENT said that he had been using catgut quite steadily for ten years or more, and he could not say that he had ever seen any bad result which he felt could be directly attributed to the catgut.

DR. H. A. KELLY said that he had not dared to use catgut during the past two years, because he had lost three patients in whom the best bacteriological examination that could be made seemed to show that the bad result was due to the catgut. Since that time he had been using very fine silk and had had but one bad result, and that had been in a tubercular case. He thought the fine silk very closely approximated the catgut in its properties and advantages.

DR. McLAREN, in closing, said that he did not think any other preparation of catgut could be compared with that recommended in his paper, because the others were prepared by unscientific methods. It was well known that a long series of cultures could be conducted and no bacteria found, whereas in the thicker strands of catgut spore bearing germs would be found which had resisted other methods of sterilization.

DR. HOWARD A. KELLY, of Baltimore, presented a paper on

THE RENAL CATHETER AND ITS USES IN THE DIAGNOSIS AND TREATMENT OF RENAL DISEASE.

I. Any one familiar with urinary diseases can readily see the advantages of a renal catheter—for example, in emptying fluid accumulations in the renal pelvis and in diagnosing and passing strictures of the upper ureter, and in differentiating soft, malignant tumors from sacculated accumulations which could be evacuated.

I have devised and used such a catheter.

II. Description of the renal catheter:

Made of silk or linen, 50 centimetres ($20\frac{1}{2}$ inches) long and

from $1\frac{1}{2}$ to 3 millimetres in diameter. Sizes, $1\frac{1}{2}$, $1\frac{3}{4}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, $2\frac{3}{4}$, and 3 millimetres.

Catheters are coated with shellac, twenty or thirty layers thick, sandpapered down, recoated, and dried in an oven.

Stylets are provided in a case for flaccid catheters.

Catheters are preserved in bulk, in large glass tubes 3 centimetres ($1\frac{1}{4}$ inches) in diameter and 60 centimetres (24 inches) long, plugged at the end with cotton.

Catheters are sterilized by washing with warm water, then with a 1:1000 bichloride solution, then again with warm water. They should be laid in an ice chest, to be cooled, an hour before using.

III. How to introduce the renal catheter:

After emptying the bladder a No. 8, 9, or 10 cystoscope is passed in to bring the ureteral orifice into view. Then, after dipping the point of the catheter in sterile boroglyceride, the instrument is brought into position for introduction, over the operator's left shoulder for right ureter, or right shoulder for left ureter. Finally, with thumb and forefinger protected with sterilized finger stalls, the operator inserts the point of the catheter in the speculum, engages it in the ureteral orifice, and gently pushes it on up to the kidney. When the top of the renal pelvis is reached the catheter begins to coil in the bladder. From 12 to 14 centimetres (5 or $5\frac{1}{2}$ inches) of the catheter is left outside, making the distance from external urethral orifice to top of pelvis of kidney about 36 centimetres ($14\frac{1}{2}$ inches). The catheter holds about one cubic centimetre, and when the lumen is filled the flow begins in intermittent drops from the normal kidney, in a steady stream from the obstructed pelvis.

A block of wood with an auger hole holds the tube while urine is running.

IV. Cases in which the renal catheter has been of use:

1. Abscess of upper left ureter.
2. Pyonephrosis with renal colic.
3. Pyelonephritis.
4. Hydronephrosis.
5. Pyelonephritis, kidney washed out.

DR. PAUL F. MUNDÉ asked how often Dr. Kelly had failed to introduce the renal catheter.

DR. KELLY replied that, leaving out one case examined in New York under unsatisfactory conditions, he would say that he had never failed, although in nervous patients it had been sometimes necessary to resort to anesthesia. The catheter was usually introduced by him in from three to five seconds.

DR. MUNDÉ asked if it were not possible to pass the catheter without the aid of the speculum. He had found that very little could be seen through the speculum, even under electrical illumination.

DR. KELLY replied that he had found the method without the

speculum very much more difficult than the one he had just described in his paper, and it was much more liable to cause more or less injury to the mucous membrane and also infection. He had now abandoned entirely this free-hand method. He had known it to give rise to severe ureteral fever, but never to more serious consequences.

DR. A. J. C. SKENE, of Brooklyn, said that he had followed Dr. Kelly in his development of this subject, and he felt that the greatest addition that had been made was the introduction of the Trendelenburg position, which so greatly simplified all such examinations. He could not refrain from wondering at the simplicity of the present method and at the fact that it had not been discovered long ago. The average practitioner did not see a sufficient number of these cases to admit of his becoming very expert in their management. With reference to the liability of contaminating the ureter, the speaker said that the risk did not arise alone from unclean instruments, but from the difficulty of keeping the bladder and ureter so perfectly clean as not to render them liable to become infected. When the ureter had been exposed he had made it a practice to carry in a small catheter and wash out the ureter, so as to assure himself on this point. Unless special precautions were observed, particularly in cases where there was unilateral disease of the kidney or where there was a certain amount of septic material in the bladder at the time of the exploration, there was danger of contamination.

DR. ARCHIBALD McLAREN, of St. Paul, said that in reply to the question raised by Dr. Mundé he would say that in his own slight experience he had found that the exposure of the ureteral openings had been quickly and easily effected. He had hitherto always used the small silver catheter.

DR. J. MONTGOMERY BALDY, of Philadelphia, said that with a good light any one could successfully catheterize the ureter, and that failure would almost certainly occur if the illumination were not of the very best kind.

DR. KELLY, in closing, said that there should be a very strong light, and a large mirror in order that a broad pencil of light be reflected into the speculum. The light should be thrown in at as small an angle as possible. This meant that the source of light should be placed near the symphysis, and for this reason an Argand burner was not satisfactory. Daylight might sometimes be used to great advantage. The metal catheter hitherto employed was very useful and would still have a place. Soft catheters, about thirty centimetres long and of the same size as the renal catheters, could be easily introduced into both ureters, and they should be extensively used for purposes of drainage. In many instances he had found one kidney perfectly sound and doing active work. When patients died of renal disease we were often astounded that they had been

able to live so long in the presence of such profound disease of one kidney. In some cases within his experience the extirpation of even one very badly diseased kidney had been followed by perfect recovery.

Regarding the matter of technique he would say that the ureteral orifice should be cleansed with a pledget of cotton moistened with boric acid solution. A sterile tube should be run in through the speculum, and then the catheter passed within this, in cases where there was danger of contamination.

First Day, May 28th—Afternoon Session.

THE PRESENT TREATMENT OF UTERINE DISPLACEMENTS.

DR. PAUL F. MUNDÉ, of New York.—Displacements of the uterus are still so frequent and have such an evil influence on the women afflicted with them that they form a large portion of the cases for which the physician is consulted and in which active treatment is demanded. There has been a great change in our views during the last fifteen years regarding the significance of uterine displacements. Increasing experience has taught us that the symptoms of antelexion are practically *nil*, that marked antelexion manifests itself by dysmenorrhea or sterility. Occasionally in a grave form of antelexion there may be distressing pressure effects on the bladder, but such cases are extremely rare. If we find a woman with antelexion and prolapsus of the first degree, it must be our object to lift the uterus together with as much of the vaginal walls as is prolapsed. Pessaries for antelexion and anteversion are now rarely used. I never use for antelexion an intravaginal support, for none of these will lift the uterus properly or straighten out the canal. The dysmenorrhea may be relieved, and perhaps also the sterility, by dilating and straightening out the uterine canal and introducing a uterine stem, provided we approve of the latter. The dysmenorrhea may be relieved and even cured in this way, and the sterility not infrequently yields to the same treatment. The pessary of Dr. Eugene Gehring, of St. Louis, I have found very useful in cases of anteversion and prolapse with cystocele. It is the only vaginal instrument with which I am familiar that will accomplish this. Many of the symptoms formerly ascribed to the version or flexion we now know are due to catarrh of the tubes and a certain relaxation of the uterine supports.

A retroversion of the first degree, in which the body of the uterus occupies the same horizontal plane with the vagina, usually produces no symptoms whatever; a retroversion of the second degree probably also causes no discomfort; but a retroversion of the third degree certainly does, in the majority of instances, exert sufficient pressure on the lower portion of the

rectum to interfere with free defecation and to give rise to hemorrhoids. In the course of time the ovaries are likely also to become prolapsed. It is exceptional for such a major degree of displacement to exist without giving rise to a number of well-known symptoms. I have found the vaginal supports extremely useful in the treatment of backward displacements. I do not expect, however, to cure uterine displacements by means of pessaries. I have reported elsewhere that I have cured by pessaries only about five per cent of the cases. The majority of cup and stem instruments sooner or later cause ulceration and do not give adequate support. Rest in bed, faradization, and massage are all too tedious and cumbersome.

I have performed Alexander's operation on seventy-seven patients, and with three or four exceptions have succeeded in finding and drawing out the ligaments. I have followed many of these cases, and have found that in the majority of them the uterus has remained in good condition. Some of them have become pregnant subsequently. If the round ligaments are not found it is the fault of the operator. I am as much in favor of the operation as ever, but it has its difficulties and complications. I have never yet lost a patient after this operation.

The credit of originating the second operation to be considered—that of shortening the round ligaments in the abdominal cavity—has been claimed by several surgeons. I do not approve of opening the abdominal cavity for any such trifling ailment as a displacement of the uterus, but where the abdomen is already opened for some other condition it is certainly proper to attempt to relieve the displacement also in this way.

The third operation is ventral fixation. I have done it twelve times, and although I have not had occasion to be dissatisfied with the operation, I must admit that I have lost one patient from heart failure. One of my patients became pregnant, and eventually miscarried on account of the fixity of the uterus. I have never been much in favor of hysterorrhaphy for mere displacements of the uterus. It has never seemed to me desirable to raise a movable organ like the uterus and fix it immovably in an anterior position.

All the plastic operations for prolapsus uteri have, in my opinion, proved unsuccessful.

DR. A. LAPHORN SMITH, of Montreal, read a paper entitled

MY EXPERIENCE WITH VENTROFIXATION AND ALEXANDER'S OPERATION.¹

DR. CLEMENT CLEVELAND, of New York, read a paper on

ALEXANDER'S OPERATION.

I consider this operation one of the most beneficent ever devised. Those who have opposed the operation have been

¹ This paper will appear in the August number.—Ed.

either those who argued against it on purely theoretical grounds or those who had done the operation a few times but had not obtained more than indifferent results. I did not feel at all at home with the operation until I had performed it fifteen times or more. That the operation is not a dangerous one is shown by the large number of reported cases and the very few deaths. Great patience and care are required to find and draw out the round ligaments, yet expert operators usually succeed in doing so in a reasonable time. These operators never state, as others have done, that the round ligaments are absent in certain cases. It is difficult to see how this operation can produce abortion, as has been claimed. I have cautioned my patients that it is not wise for them to become pregnant for at least a year after the operation, but I do this simply as a precaution. Cases that have become pregnant have been found after delivery to have the uterus still in good position. It is desirable after labor to watch carefully for some time the position of the uterus. The use of a pessary under such circumstances is often very beneficial. Hernia has occurred in only two of my cases, and these were among my earlier operations and where the canal had been slit up. I cannot agree with those who state that the operation is unscientific, for there can be no sound objection to restoring the uterus to its normal position. Formerly I contented myself with ventral fixation and I have performed it successfully many times; but, since I have had such excellent results with Alexander's operation, I have found it impossible to resort to this much more grave operation. The intraperitoneal shortening of the ligaments I am opposed to on account of the gravity of the operation and because of the slight attachment of the ligament. Mann's operation for intraperitoneal shortening, where the ligament is shortened at the internal ring, is the only one in which this objection does not hold good.

Alexander's operation is indicated in retrodisplacement with prolapse of one or both ovaries, where for any reason the pessary cannot be worn. It is also indicated where there is a shallow vaginal pouch, on account of the inability of such patients to retain a pessary. Chief among the causes of failure with Alexander's operation are bad surgery and its performance on cases where there are more or less adhesions or disease of the uterus or ovaries. It is rare that the ligaments are too frail to support the uterus; indeed, in many of my reported successful cases they appeared very thin and weak, and yet they did their part. Another cause of failure is that the ligaments are not drawn out as far as they should be; they should be drawn out about four inches. Suppuration is another cause of failure.

The patient should be carefully prepared as if for a laparotomy. The vagina should be thoroughly washed and the uterus curetted. A pessary is fitted and introduced after the cervix and perineum have been properly repaired. The pessary should be

worn for at least two months after the operation. An incision, three-fourths of an inch to one inch long, is made from the pubic spine in the direction of the inguinal canal, and down to the tendon of the external oblique. By pressing firmly on either side of the ring upon the pillars the cellular membrane will be seen to pouch. The fat then appears, and the ligament can be easily isolated and drawn out for about four inches. The same is done on the other side. Two sutures are inserted through the integument, fat, the pillar of the ring, and the muscle, and in the reverse manner through the same tissues on the other side of the ring. A ligature-carrier, made sharp and delicate for the purpose, is passed at the lower end of the incision under the fascia and out at the mons, an inch or more below the pubic spine. A loop of silkworm gut is placed in the carrier and drawn back with the instrument into the incision. A loop of the ligament is placed in the loop of silkworm gut and drawn back. While the ligament is held taut the sutures in the incision are tied quite tightly. A dressing of moist sublimate gauze is applied to the wound and secured by a spica bandage. The patient is kept in bed for three weeks. I have given up buried sutures altogether, because I think they are a prolific source of suppuration. The sutures are left in place for three weeks, in order to allow of firm union of the ligaments. In cases of retroflexion the uterus should be carefully lifted up by a sound before anchoring the ligaments. The dressings should be changed every three days, and they should be kept moist with boric acid, because the sublimate solution causes too much irritation. The patients are cautioned against inserting their hands under the dressings, as this has been found a fruitful source of suppuration in these cases.

DR. F. H. DAVENPORT, of Boston, said that, with the best showing that could be made by the advocates of Alexander's operation, it was evident that its field of usefulness was exceedingly limited. There were many women with retroflexion and retroversion in whom there were no symptoms referable to these conditions. In his experience Alexander's operation did not always relieve the symptoms, even though the uterus were freely movable and could be easily brought into position. The operation, in his opinion, gave rise to hernia more often than had been generally supposed, and this seemed a very strong contraindication. Pain in the incision and numbness in the groin were not infrequent sequelæ. For all these reasons he would certainly limit the operation. The pathological condition giving rise to the retroversion or retroflexion seemed to him to be connected with the cervix, the broad ligament, and the utero-sacral ligaments; hence the operation on the round ligaments alone was not sufficient. It was possible that the method of vaginal fixation now advocated in Germany would solve the problem of the proper treatment of these cases.

DR. ELY VAN DE WARKER, of Syracuse, said that, speaking from the standpoint of the surgeon, he felt that hysterectomy would probably be the only accepted method of treating this condition, and hence he thought that the older men, like himself, should have an opportunity to say something on the subject. About twenty years ago he had had the temerity to read a paper on the treatment of flexions of the uterus with the intrauterine stem. He did not think there had ever been an instance in which a man, either young or old, had been so thoroughly "sat upon" as he had been for this effort. But time had brought its own revenge. One of his most earnest opponents at that time had subsequently published an edition of his book which had fairly bristled with intrauterine stems. Had he met with any accident with these stems he would not have been able to find a single member of this Society or anywhere else who would have supported him or saved him from being mulcted in damages.

Whether retroflexions were productive of symptoms demanding treatment, he felt that there could be no doubt about the existence of symptoms in cases in which there was sharp retroflexion. It was very common to find a young woman experience but little difficulty with a retroflexed uterus until she entered married life. He felt that if a proper intrauterine stem were employed in proper cases and with proper precautions there would be no occasion to regret its use.

He had had considerable experience with Alexander's operation, and it had not been altogether in its favor. He could not but feel that the operation was unscientific, for the round ligament, by failing to give proper support to the uterus, had permitted the occurrence of retrodisplacement. The treatment of the round ligament was the treatment of results and symptoms and not of causes. Such treatment did not deal with the forces in the pelvis which had brought about the retrodisplacement. He did not believe there was any proof to-day that the round ligaments were the organs which held the uterus in the normal position of anteversion. These round ligaments were bands of connective tissue which underwent enormous elongation and subsequent shortening through a retrograde process. Again, we could not always be sure that the pelvis was free from adhesions, and if such existed the result of the operation would not be a success unless a pessary also were resorted to.

DR. HENRY C. COE, of New York, said he thought the last speaker's premises were illogical. It was not the intention of the operation to suspend the uterus as a dead weight. The function of the round ligament was to keep the uterus sufficiently forward so that the intra-abdominal pressure would keep the organ in the normal position. For this reason he did not see how the operation could be of service in prolapse. Sooner or later the prolapse would recur. The aim should be to pull out

the ligaments sufficiently to throw the uterus past its dead centre, and then the intra-abdominal pressure would maintain the organ in its proper position. Dr. Davenport had touched upon one important point—inflammation of the sacro-iliac ligaments. One common cause of failure was the inflammatory condition of these ligaments, and when the round ligaments were shortened the backache was increased and the patient's condition made worse. In Dr. Polk's method of dividing the vaginal fornix the tension would be relieved, and hence it seemed to him it was likely to accomplish more than the ordinary Alexander's operation. In many cases of prolapse of the ovary the patient could not wear a pessary on account of the tenderness of the part. An important result of the Alexander operation was that the ovary was lifted up sufficiently to entirely relieve the symptoms, and that, too, even when the anatomical position of the uterus had not been materially improved.

He had always understood that ventral fixation was to be performed when there was a condition requiring the opening of the abdominal cavity, and that Alexander's operation was applicable to cases free from adhesions of any kind and from disease of the uterus and appendages. The operations, therefore, did not seem to be comparable.

DR. T. A. EMMET said that shortly after Alexander had begun to operate he had had an opportunity to see him operate a number of times, and on these occasions he had placed his finger in the vagina while the uterus was drawn forward. While carrying out these observations he had become impressed with the uselessness of the operation, and he had on this account never performed it. With a degree of prolapse which straightened the vessels they also became larger and this gave rise to congestion. He felt confident that it was congestion and not displacement that was the cause of the symptoms of which these patients complained. It was well known that patients complaining of symptoms referable to anteversion suffered still more if the uterus were further anteverted. If Alexander's operation ever gave relief, he believed it was by accident simply—in other words, the uterus had been placed in such a position that the circulation had been restored. The same criticism applied to ventral fixation. With a pessary a patient was not relieved by doing away with a version, but by lifting the uterus to such a point that the pelvic circulation could be restored to the normal.

DR. POLK said that Alexander's operation had been before us since 1883, and yet the objections to the operation at that time were pretty much the same as those brought forward at the present time; nevertheless some of those who had been objectors formerly had become advocates of the operation. Personally he believed that in every instance, if the operation were done in proper cases, the result would be exactly that described by Dr. Cleveland, who, by the way, had been one of those who

had at first objected to this operation. Many of those who had spoken would find very few cases on which to perform ventral fixation, did they not include cases of adhesions. If the vaginal vault were opened, the adhesions broken up, and the appendages examined, any one would be placed in a position to properly and profitably resort to the Alexander operation. Ventral fixation, in his opinion, was a good operation in its place, but it had a limited application—*i.e.*, to those cases in which a laparotomy had been performed, so that it was only necessary to fasten the uterus to the incision. Aside from that it seemed to him that this operation had no standing. He did not think there was any operation the technique of which had borne the test of time so well as Alexander's operation, and therefore, while glorifying the operation, he thought it proper to glorify the man who had made this operation possible.

DR. BALDY said that in the limited number of cases in which any such operation seemed to him applicable he always employed ventral fixation. In those cases in which there was inflammatory disease outside of the uterus which prevented resort to ventral fixation, the condition was equally unsuitable for Alexander's operation. In his own practice he could not be sure that there were not adhesions present, and even if very slight adhesions did exist Alexander's operation was contra-indicated. The pessary was suitable for the treatment of the majority of those cases to which Alexander's operation was applicable. Neither of these operations was of much service in cases of prolapse, unless plastic operations were performed immediately afterward. There was a small number of cases of prolapse, in which the uterus was very large and the woman past the child-bearing period, in which a hysterectomy was allowable.

DR. G. M. EDEBOHLS, of New York, said that two years ago he had presented to this Society a series of about ten cases in which he had performed plastic operations for complete prolapse of the uterus and vagina. He had advocated at that time that the plastic operations necessary for a cure should be combined with a ventral fixation. His experience since then had confirmed these views. Only one of his patients had become pregnant subsequent to the operations. This one had been delivered at full term, and when seen one year afterward she was still completely cured of her prolapse. His experience with the new Freund operation for prolapsus had been limited. His operations of this kind were done in January of 1894. At first he had been very enthusiastic over the operation on account of its simplicity, but he had modified his views somewhat. Of the five cases of complete prolapse upon which he had operated by this method, the first one still remained cured, the second one was cured when seen after eight months, two relapses, at one and three months respectively, had occurred, and the fifth case

could not be followed. He still felt that the operation, even though repeated annually, was proper, as it could be performed easily under cocaine anesthesia.

Regarding Alexander's operation, he would say that the statement that had just been made—that when no ligament was found it was the fault of the operator—was incorrect. He had been of this opinion until recently, when he had had one of those cases in which the existence of the ligament was not apparent. This had led him to extend his dissection, and he had found in this way that immediately after emerging from the internal ring the ligament spread upward and was attached to Poupart's ligament as far as the spine of the ilium—in other words, the ligament went upward instead of downward. In another still more recent case he had also found that the ligament, instead of following the usual course, passed through the internal ring, and then, instead of passing into the canal, turned upward and outward as in the other case.

DR. MUNDÉ, in closing, said that the objections made by Dr. Van de Warker and Dr. T. A. Emmet could be answered by saying that as long as the patients were relieved we should be satisfied. He had done the operation first on December 12th, 1884, and had carefully followed Alexander's technique.

DR. CLEMENT CLEVELAND, in closing, said that it was true, as stated, that pain was often present after Alexander's operation, but as a rule it soon disappeared. In his paper he had reported eighty-four cases in which the operation had been done for *symptoms*, and in a large majority of these the symptoms had been relieved after a sufficient length of time had elapsed.

DR. A. LARTHORN SMITH, in closing, said he agreed with Dr. Coe in the statement that the so-called round ligaments were not ligaments, but were muscles. He insisted that ventral fixation was applicable to the widest range of cases; it would answer wherever a pessary was suitable or wherever Alexander's operation was applicable. He liked the results of Alexander's operation, but he opposed it on account of the great difficulty experienced in finding the ligaments. If there were a death rate from ventral fixation, or if it failed to cure, he would be opposed to ventral fixation; but there was no death rate and it certainly did cure.

DR. J. MONTGOMERY BALDY, of Philadelphia, read a paper entitled

ABDOMINAL SECTION FOR PUERPERAL SEPTICEMIA.¹

DR. FERNAND HENROTIN, of Chicago, in opening the discussion said that he would consider a part of the subject more at length in a paper which he would read on "The Conservative Surgical Treatment of Septic Pelvic Disease." The reader of

¹ See original article, p. 1.

the paper had stated that there was no more danger in draining an abscess abdominally than vaginally. To this he would take decided exception. Unless the abscess cavity were attached to the abdominal wall, such drainage through a healthy peritoneal cavity was far more dangerous. Hysterectomy was certainly proper under certain circumstances, and in doubtful cases it was proper to open the abdominal cavity and ascertain if it were possible to do more conservative work. The general condition of the patient was an indication as to the wisdom of such a procedure. Pus in the pelvic cavity could certainly be reached successfully through the vagina, but of this he would speak more fully in his paper. In cases where there was no distinct demarcation hysterectomy was probably the best procedure. In cases of septic, diffuse, purulent peritonitis, arising, for instance, from *primary* rupture of the appendix, a very early operation would sometimes save the patient; but where the peritonitis followed from a secondary rupture—*i.e.*, from a cavity in which the pus had been retained for some time—he had never known recovery to take place.

DR. W. GILL WYLIE, of New York, said that he thought if the uterus were washed out frequently enough—every hour—and this were continued for a sufficiently long time, many cases of puerperal sepsis could be saved without resort to further interference. Those who had tried only the fashionable method of dilatation, curetting, and gauze packing would be surprised at the results that would follow a fair trial of this method which he advocated. He agreed with the last speaker that often in apparently hopeless cases recovery would follow draining off the pus. He was sure that general septic peritonitis could be cured by operation, provided the condition were properly diagnosed at a sufficiently early stage. He was positive about this, because he had operated on quite a number of cases in which the peritonitis had arisen from an appendicitis.

Second Day, Wednesday, May 29th—Morning Session.

(DISCUSSION CONTINUED.)

DR. ANDREW F. CURRIER, of New York, said that the question of operating upon cases of diffuse peritonitis, with or without septicemia, had been pretty well settled in his own mind; they should be positively excluded from the operable class. On the other hand, those cases in which the suppuration and inflammation were extraperitoneal seemed to him to be quite within the line of operation. If we observed the general surgical law of making the incision in the most dependent part, we could usually look for a favorable result. The question was thus narrowed down to those cases in which the inflammation was confined to the uterus and the adnexa. Dr. Baldy had stated that

if an operation were to be done it should be performed within the first week after confinement, yet all of us were aware that many of these cases were not seen at all by surgeons until after this time; indeed, the need of such interference was often not apparent until after the first week. His own experience had led him to believe that the performance of such capital operations as the removal of the uterus and adnexa, in view of the extent of the disease process, was hardly to be recommended. As had been stated by Dr. Lusk in the discussion of this subject recently before the New York Academy of Medicine, some of these cases would recover without operation, and this fact should not be lost sight of in the consideration of this matter.

There was a class of cases, in which the products of inflammation were extraperitoneal and situated in the broad ligament, which were quite amenable to operation. The operation should be undertaken for the determination of the exact location of the inflammatory products.

DR. C. P. NOBLE, of Philadelphia, said that the difference between the cases seen early and those seen late should be very sharply brought out. In those cases where there was a pus tube, or an abscess of the ovary, or a circumscribed collection of pus in the pelvis, seen a considerable time after confinement, the question was entirely different from this. There was a certain number of cases in which death seemed almost certain without operation, and hence we should give the patient the benefit of the doubt and operate. Ordinarily he would perform hysterectomy in cases where the patients were very thoroughly septic at the time of the operation. Puerperal hysterectomy would have to be done within a week or two, if we were to hope for any good results. Puerperal hysterectomy done at the end of the puerperal month was merely a detail in technique.

DR. H. C. COE said that he had been looking for a typical case of puerperal peritonitis for some time past. He had found such a case about one week ago, and he had operated the fifth day after the initial chill. The patient was in excellent condition at the time of the operation, her temperature being a little over 100° and the pulse about 110. The anatomical condition found indicated the congestive stage of peritonitis. There was a small amount of fluid in the abdominal cavity; there were no adhesions or organized lymph. There was an acute salpingitis. The operation was performed quite rapidly. The uterus was not removed, because it was small and he did not wish to have any shock. The uterus was washed out and drained through the vagina. The patient recovered perfectly from the operation, yet she suddenly collapsed and died about ten hours afterward. The operation was a private one, performed under very favorable conditions. His judgment, therefore, was that it was almost impossible to select the cases clinically at such a stage in the development of the infection that one could say positively

that the process was localized. There seemed to be great danger of sudden collapse in these cases which had become thoroughly infected. Abdominal section for puerperal septicemia he would characterize as a purely experimental operation.

DR. A. LAPHORN SMITH said that, as he had reported one successful case of the removal of the uterus for puerperal septicemia, he had taken much interest in this subject. Drainage he had found especially valuable. This he had carried out, not by packing with gauze, but by the insertion of a wick of gauze so as to favor capillary drainage and avoid any possibility of obstruction of the canal. In those cases in which, in spite of washing-out and drainage, the symptoms became more urgent, and where one was absolutely powerless unless operative measures were adopted, we should resort to operation as the only treatment offering the patient any chance of recovery. In the successful case he had reported he had opened the abdomen expecting to find a ruptured pus tube, but, on finding what was the true condition, he had lifted out the uterus, passed a wire around it, and removed the organ. In another case, in which he had not dared to remove the uterus as in this case, because of the unfavorable criticisms that had been made, he had found numerous lymphatics filled with pus. Against his own judgment he had left in that uterus and his patient had died. This application of the wire to choke off the circulation of septic matter through the lymphatics seemed to him a very important procedure, and one which he hoped would be given a thorough trial by others.

DR. BALDY, in closing the discussion, said that the class of cases in which hysterectomy was applicable was an exceedingly limited one, and the line should be sharply drawn, as had been said, between the acute and the chronic cases. When these cases were seen at the end of the first week or two it was no time to resort to hourly washings of the uterus, as had been suggested by Dr. Wylie, and we were required to decide quickly regarding the advisability of operation. As several successful operations had already been reported, it was certain that some even desperate cases had been saved. They were certainly cases that offered no temptation to the surgeon to operate. It was true that Dr. Coe's patient had died, but this should not discourage him from trying the same procedure again. He could see no advantage in this continued and frequent washing out of the uterus in cases seen at a late stage, because, as was well known, the walls of the uterus were already infiltrated with pus. Dr. Henrotin and Dr. Wylie had both spoken of cases of rupture of the appendix and of a pus tube in which abdominal section had been successful after the rupture; but these were not cases of general suppurative peritonitis, but cases in which the belly was full of pus. If such a case had been allowed to go on for twenty-four hours or more, then the case might have become one of general suppurative peritonitis. No case of true sup-

purative peritonitis, as far as he knew, had been placed on record as having been successfully treated by abdominal section.

PRESIDENT'S ADDRESS.

DR. MATTHEW D. MANN, of Buffalo.—We have a weighty responsibility placed upon us; we have not only to keep up with the progress of the world at large, but to maintain for American gynecology the proud prominence already achieved. The way to do this lies through hard work. The Society can claim to have within its ranks a representative body of gynecologists. I would urge upon the Society the desirability of extending our membership limit. Particularly do we want more obstetricians, for obstetrics and gynecology can never be separated. It cannot be questioned that obstetrics has not made the same advance among us as has gynecology. It is a fact that a large number of the cases coming to the gynecologist for treatment are the result of faulty management in the lying-in room. As a country we are far behind in proper facilities for teaching obstetrics, and to this I would ascribe the lack of progress made in this branch. It has been frequently noted that the tendency of modern gynecology is to resort to the knife, but I feel sure that therapeutics, aided by chemistry and bacteriology, will place in our hands many remedies with which we can successfully combat many conditions now treated surgically.

I would ask your attention now to an attempt to throw some light on the origin of certain pelvic diseases. By contiguity alone the pelvic organs are liable to be affected at the same time and by the same disease. While this is true of gonorrhea, it is also true of septic disease. The vascular and nervous connections are also so intimate that they unite the pelvic organs, and in addition to this the secretions of these various glands and organs furnish another bond of union.

Patients with pelvic disorders often complain of a great variety of symptoms. The physical examination often shows no serious lesion of the pelvic organs. In almost every case there will be a discharge from the cervix, and not infrequently the ovaries may be tender and prolapsed and the rectum may be in a diseased state. An examination of the urine will almost always show the daily quantity of urine to be decidedly below the normal. This renal insufficiency is very frequent and noteworthy. This scanty urine is always decidedly acid and generally contains an excess of uric acid. Sometimes the urine is clear, limpid, and of low specific gravity, showing a diminution in the quantity of solids excreted, and hence indicating still the existence of renal insufficiency. There can be no question that the urine as a whole is toxic. The urine excreted by a healthy man in fifty hours has been shown by experiment to contain usually enough poison to kill him. This fact is very significant.

The examination of the blood is also of importance. The term lithemia, although very vaguely used, is a convenient one. Lithemia may be defined as a distinct disturbance of nutrition of a certain type, associated with a tendency to excrete uric acid in excess. These cases should be first considered as instances of disturbances of the general nutrition, and then we should endeavor to determine whether the special cause is connected with any disorder of the pelvic organs or with some other region of the body.

To abnormal and irritating urine I attribute many symptoms that are referable to the bladder. Exactly what is the irritating ingredient is not fully determined, but there can be no question that the neutralization of the acidity of the urine very perceptibly diminishes the irritability of the urine.

Constipation in women is often due to reflex spasm of the sphincter, as well as to digestive disorder and improper dress. The passage of undigested food is not an improbable source of irritation of this kind.

It has occurred to me that there may be a direct and inhibitory influence exerted by the uterus on the kidneys, so often have I found disorders of these two organs associated.

It does not seem to me that the profession has taken sufficiently strong grounds on the matter of dress. Displacements not only of the uterus but of all the abdominal viscera, by very moderate constrictions at the waist, are known to occur. Those who are performing abdominal sections will have abundant opportunities for observing this downward displacement of the viscera. Observation has shown that such displacement is confined to civilized women. Modern investigation has shown that in whole races of people in which waist constriction is not produced by dress the function of respiration is carried on exactly the same in women as in men. If we measure a woman's waist with a tape we shall find that in a very large proportion of women there is little if any variation in the measurement during inspiration and expiration, whereas in man there is a marked difference. I think the medical profession has an important duty to perform in instituting a change of sentiment regarding what is the model woman's form. The average woman of to-day has no more the figure that Nature meant her to have than have the feet of a Chinese belle. Improper dress interferes with muscular exercise and general development, and so leads in many instances to disturbance of digestion and nutrition.

The foregoing observations are not, as they might at first seem to be, purely theoretical, but are founded on my every-day clinical experience. We must remember that the human organism is a wonderfully complex affair, and we should in our treatment look beyond the pelvic organs and study the underlying causes of disease.

RENAL INSUFFICIENCY IN GYNECOLOGICAL CASES.

DR. JAMES H. ETHERIDGE, of Chicago.—In this paper no reference will be made to organic disease of the kidney, but only to functional insufficiency. Many gynecological cases suffer very markedly from this latter condition. Urinary solids are a lethal poison when given in sufficient doses. It has not yet been determined what tissues are specially affected by the retention of urinary solids. I have had an expert physiologist construct a table showing the amount of urinary solids excreted by a healthy woman in the twenty-four hours. This table shows that a woman weighing about ninety pounds should excrete seven hundred and eighty-nine grains, and one weighing one hundred and ten pounds, nine hundred and sixteen grains of solids. The variation in the daily quantity of urinary solids depends upon the body weight and may be stated to be five hundred to eleven hundred grains. The formula here recommended for determining the quantity of urinary solids is as follows: Multiply the last two figures of the specific gravity by the number of ounces of urine excreted in the twenty-four hours, and multiply this by 1.1. When the daily quantity of urinary solids is greatly diminished the nervous system is profoundly affected.

DR. A. J. C. SKENE, of Brooklyn, said that it seemed to him that the President's address and the last paper were so complete in themselves that it would be well to close them without discussion by simply saying "Well done" and "Amen." Personally he was well aware that renal insufficiency played an important part, not alone in its medical aspect, but in its influence on surgical cases. He believed that many affections of the pelvic organs had their genesis in functional derangements of the organs that were especially connected with the general nutrition. He wished that the reader of the paper had dwelt more in detail upon the causes of renal insufficiency. Personally he thought deranged innervation was one cause and reflex irritation was another. He was not sure whether disturbance of the nervous system or of the digestive organs had the most to do in the production of renal insufficiency. It was not until he had resorted to systematic determinations of the quantity of urea excreted that he had obtained the best practical knowledge of the urinary condition presented. There were two distinct classes of cases of renal insufficiency ordinarily met with—viz., (1) neurasthenic cases and (2) lithemic patients. He was sure that rest and forced feeding treatment, appropriate in cases of neurasthenia, if too greatly prolonged often led to a condition of lithemia. The tissues developed under this forced feeding process were very much like the flesh developed in fowl by the cramming process.

DR. H. A. KELLY said he wished to speak on the relation of renal insufficiency to operative cases. He presented an analysis of twenty-one recent gynecological cases coming for operation.

The average amount of urea excreted before and after operation was determined. The results were practically the same as had been obtained in a previous series of one hundred cases. The average daily quantity was one thousand and twenty-seven cubic centimetres of urine, the normal being about one thousand two hundred cubic centimetres. These observations, as depicted on the chart presented, showed that the quantity of urine fell to about one-half the normal daily quantity after operation, but the quantity of solids remained unchanged. The tendency to think that a nephritis was lighting up after operation seemed to him unwarranted, for these observations showed that it was normal for the urine to drop down for a number of days to about one-half the normal quantity. With this diminished secretion, however, there was about the normal quantity of solids, so that this urine was very concentrated. One who had not considered the subject might think at first, from this greatly diminished quantity of urine, that one ureter had been accidentally tied during the operation, but these observations made it evident that such fears were groundless if there were no other foundation for them than the diminished quantity of the urine. The explanation of this diminution in the quantity of urine was that it was probably due to the very small quantity of fluid taken by these patients for a few days, and also to the fact that the ether had carried off considerable water.

DR. WILLIS E. FORD, of Utica, said that neurologists told us that in all cases of ovarian disturbance marked fluctuations in the urinary excretion were observed. He had been led to think in the past that most of these changes in the urine were due to emotional disturbances. It would be found that about the same changes in the urinary secretion were observed in male neurasthenics, and hence too much importance should not be attached to the influence of ovarian irritation.

DR. BALDY said that he did not believe that these cases were suffering from gynecological troubles because of the renal insufficiency, but that the renal insufficiency and the neurotic conditions were due to the gynecological conditions or to some entirely independent cause. Many of these patients were undoubtedly neurasthenic as the result of prolonged suffering.

DR. W. GILL WYLIE said that for many years he had noticed the facts which had been scientifically demonstrated by Dr. Kelly. It had been his habit for a number of years to satisfy the thirst and relieve the circulation, and so to avoid this diminution in the quantity of urine after operations, by giving his patients a drink by the rectum. This measure quieted the patient's restlessness and did not disturb the stomach in the least. He felt satisfied that in some instances it would prevent the development of what was called "secondary shock."

DR. BACHE EMMET, of New York, said he wished to direct attention to a practice which would prevent patients from ex-

hibiting this diminished secretion of urine. The method was simply to have the patient placed under treatment directed to improving the condition of the intestine and kidneys for a certain length of time previous to the operation.

DR. A. LAPHORN SMITH said that as a rule we did not compel our female patients to drink nearly enough water. He believed many of the vague pains of which they complained were due to deposits of uric acid in the muscles of the back or in the kidneys, and this could be done away with by the free ingestion of water.

DR. ETHERIDGE, in closing the discussion, said that he had purposely avoided details of treatment. As a rule he collected the urine for twenty-four hours and estimated the amount of solids passed, and if he found that the quantity was reduced about fifty per cent he felt that it was wise to postpone the operation for a day or two.

INDICATIONS FOR TOTAL EXTIRPATION OF THE UTERUS BY THE VAGINA.

DR. CHARLES EDWARD JACOBS, of Brussels.—As a general rule it may be said that vaginal hysterectomy finds its indications as follows: (1) for uterine cancer; (2) for fibroids of the uterus; (3) for extrauterine pregnancy; (4) for total genital prolapse; (5) for inflammatory disease of the appendages; (6) for chronic and incurable disease of the appendages and uterus; (7) for diseases of the uterus after abdominal operations. From 1889 up to the present time I have done 403 operations of this kind, with 391 operative cures and 12 deaths, thus making the death rate 2.9 per cent.

The more important operations may be classified thus: There were 35 cases of uterine cancer, with 34 cures and 1 death; 2 cases of sarcoma, both cured; 5 cases of malignant adenoma, all cured; 23 cases of simple vaginal hysterectomy, all cured; 15 cases of hysterectomy by morcellation, with 13 cures and 2 deaths; 3 cases of extrauterine pregnancy, with 3 cures; 19 cases of total genital prolapse, with 18 cures and 1 death; 142 cases of bilateral disease of the appendages and purulent pyosalpinx, with 139 cures and 3 deaths; 6 cases of tuberculosis, with 5 cures and 1 death; 6 cases of pelvic neuralgia, with 5 cures and 1 death; 14 cases of secondary hysterectomy after abdominal operations, with 14 cures.

I consider that extirpation for uterine cancer should be attempted if the uterus is free and there is no extension of the disease beyond. It certainly offers a chance for relief and for the prolongation of life, with but slight danger to the patient. It has been exceptional in my experience for uterine fibroids to disappear after the menopause. It is not uncommon for the metrorrhagia to increase in severity after this period. The arti-

ficial menopause is only able to give at the best uncertain results, and the medical treatment almost always gives bad results; hence operation should be uniformly advised as early as vaginal operation can be done. The two deaths after morcellation were due to exhaustion and cardiac disease respectively.

Our present knowledge would indicate that in cases of extra-uterine pregnancy the appendages are always diseased on both sides, and hence that here total castration by the vagina finds all its indications. This interference should be undertaken as early as possible. I have operated upon three cases, with three positive cures. In three of the cases there was also intra-abdominal hematocoele. In aged women, in whom the uterus has lost its function and where a heavy uterus is totally prolapsed, I usually perform a plastic operation on the vagina and perineum a few weeks afterward. Out of my 272 cases of inflammatory disease of the appendages operated upon there were 6 deaths. Three of the deaths occurred in exhausted women, and the three others seemed to be the result of nervous shock precipitated by the operation. I have seen about three-fourths of these patients at a greater or less period of time since the operation. In the 403 cases of hysterectomy there were 9 fistulae following the operation; there were 5 intestinal, 3 vesical, and 1 urethral fistulae. Most of the intestinal fistulae existed previous to the operation.

It has been contended that by this method of operating certain suppurating pockets might have to be left. In all the cases of serious suppuration I have left parts of the appendages in the pelvis twenty-one times, and I have not had to resort subsequently to operation in these cases.

A consideration of the various statistics at our command shows that the operation of Péan is less dangerous in suppurative, and gives better results than laparotomy in non-suppurative, cases.

My conclusions are: (1) That total extirpation through the vagina is indicated in uterine cancer in the beginning, in uterine fibroids, in extrauterine pregnancy, in total abortions, and in total genital prolapse; (2) that it becomes the choice operation in bilateral suppurative or non suppurative disease of the appendages; (3) that it finds its indication in uterine, chronic and incurable diseases of the appendages; and (4) that total vaginal hysterectomy is not a more dangerous operation than laparotomy.

DR. WILLIAM H. WATHEN, of Louisville, presented a paper on

VAGINAL HYSTERECTOMY FOR UTERINE MYOMATA AND DISEASES OF THE ADNEXA.¹

¹ See original article in August number.

CONSERVATIVE SURGICAL TREATMENT OF PARA- AND PERIUTERINE SEPTIC DISEASE.

DR. FERNAND HENROTIN, of Chicago.—Celiotomy and the removal of the uterine appendages, as indiscriminately applied in the past, constitute a most unsatisfactory operation. The amount of sentiment that has been wasted on the emasculated uterus is simply ridiculous. In every operation for septic disease of the female generative organs which demands the removal of the tubes and ovaries, hysterectomy should always be performed, unless there are plain contraindications. It does not mean more mortality, and it does mean a more complete cure. This is true conservative treatment in septic pelvic disease. It is before the surgeon lays hands on the ovaries that the time is appropriate for the exhibition of skill in saving these organs; after they have been removed the mischief-making uterine should also be taken out. For malignant affections involving the tubes and ovaries many surgeons have resorted to various methods of puncture. One of its greatest recommendations is its freedom from danger. Personally I have frequently drained such pus collections through the vagina, and I think we should not forget the value of such simple and safe methods of treatment. The conscientious gynecologist must learn to exercise greater discrimination between cases. The time to cure septic and inflammatory diseases is within the first week after their appearance. One of the greatest difficulties in the past has been that of preventing the spread of disease from the uterus into the appendages.

In the treatment of these acute affections I have had good results from the following method: Whenever pelvic diseases have given evidence of having spread beyond the uterus during the past few years, I have made an incision into the vagina behind the uterus and have explored this region digitally. An ovarian abscess is often the first demonstration of a septic infection extending beyond the uterus itself. A recent case will illustrate what I wish to say. A woman who had been treated by an abortionist, and had developed a chill and a high temperature, was seen by me for the first time on the sixth day. I made the vaginal incision behind the uterus, and with my finger explored between the broad ligament extraperitoneally and found an accumulation near the ovary. I dilated and evacuated an abscess containing about a teacup of pus. I usually make a buttonhole just behind the cervix to avoid hemorrhage. If there is nothing but exudate, and you drain that, that patient will be cured, and that quite rapidly.

*Second Day—Afternoon Session.*SPECIMENS REMOVED BY VAGINAL AND ABDOMINAL
HYSTERECTOMY.

DR. R. STANSBURY SUTTON, of Pittsburg.—About the first of last November I put to practical use what I had seen in a recent visit to Dr. Jacobs. I have removed the uterus through the vagina twelve times, with twelve recoveries, and the specimens from nearly all of these are here for your inspection. One of these patients had had her pus tubes removed twenty months before the vaginal hysterectomy. The latter operation was done because of persistent bleeding, and the specimen shows that the bleeding was due to a small fibroma in the wall of the uterus. No operation except total extirpation would have cured that case. All of these twelve patients were able to sit up out of bed one week after the operation. One case, in which there were no adhesions, was operated upon in five minutes, while the more difficult ones took about an hour.

I wish also to present some specimens removed by abdominal section. Here is a specimen, weighing two and a quarter pounds, which was attached to a pregnant uterus. I have three times encountered the pregnant uterus in operations for fibroids, and in every instance I have removed the uterus and the patients have recovered. As to the question of the advisability of leaving the pregnant uterus under these circumstances, I would say that Leopold has collated all the myomectomies done on the Continent of Europe in the presence of pregnancy. Of the thirty-one cases so collected, eight of the mothers died and seven of the fetuses were lost by abortion—in other words, the gross mortality was fifty-seven per cent, while the individual mortality was about twenty-four per cent for both the fetus and the mother. As the mortality of the Baer operation for fibroid is about three or four per cent, if this be added to the mortality just quoted I think it will be evident that it is infinitely safer for the mother to remove the uterus.

DR. E. E. MONTGOMERY, of Philadelphia, said that the statistics presented to-day showed a mortality of only about three per cent in a large series of vaginal hysterectomies, and hence we should consider seriously whether or not the vaginal method were not superior to the abdominal method of performing hysterectomy. The long convalescence, the abdominal cicatrix, and the danger of ventral hernia following abdominal hysterectomy should make it pretty clear that the vaginal method was the better one. By the vaginal route one could explore the condition of the viscera without going further. After the removal of the ovaries and tubes the uterus was of but little value, and was often a source of danger and discomfort, yet he would not go so far as to say that in every case of bilateral disease the uterus should be re-

moved along with the ovaries and tubes. He did not consider it a justifiable procedure to extirpate the uterus where there was an ectopic gestation on one side. He agreed as to the wisdom of removing the uterus through the vagina in cases of malignant disease and of fibroid growths which were sufficiently extensive to render the retention of the uterus impracticable. The uterus should not be removed, however, invariably when fibroids exist, for by other and less radical methods the uterus could often be restored to a healthy functional condition. The vaginal method secured excellent drainage without danger of any bad consequences.

DR. J. M. BALDY said that he wished to draw the line clearly between the vaginal and abdominal methods of performing hysterectomy. He would exclude from his remarks that class of puerperal septicemia in which there was intraperitoneal abscess; on the other hand, he would include every variety of case spoken of in the paper of Dr. Jacobs. One of the disadvantages of the abdominal operation was the abdominal scar and the danger of hernia, yet he did not think any one present would grant that more than two per cent of the cases developed ventral hernia. He considered it one of the greatest disadvantages of the vaginal operation, instead of one of its advantages, that the patients were able to get out of bed so early, for he thought it was extremely important that they should remain in bed for at least a month. It would take one-third the time to do above what it would to do below, and hence this slowness of the vaginal operation was great disadvantage. His own experience and observation certainly indicated that the vaginal operation was by far the more difficult. In two hundred and thirty-four American cases collected, not a single fistula had followed the abdominal operation. Intestinal fistulae were much more common after vaginal hysterectomies than were herniae after abdominal hysterectomies. By both methods the operation might be begun as an exploratory one, and, in his opinion, the operation could be stopped at this stage much more easily by the abdominal route. By the abdominal operation no one would remove a pregnant uterus without knowing that pregnancy existed. By the abdominal method every particle of diseased tissue was removed, but not so by the vaginal operation. To this day it had been claimed that the vaginal operation was the safer; but a collection of seven hundred and twenty-four cases of vaginal hysterectomy performed by the most eminent operators in the world gave a mortality of 4.6 per cent, while, on the other hand, a collection of two hundred and twenty-four abdominal hysterectomies done by eminent American operators had given a mortality of 2.7 per cent. This mortality record alone should settle the question as to which method was the better. He knew of but one case in which an abdominal operation had been undertaken and abandoned, and which had been operated upon by another operator by

the vaginal method, and in this instance the patient succumbed to the vaginal operation within an hour.

DR. W. M. POLK said that he looked upon this discussion as the most important one that could come before the Society for a long time hence. It could not be hoped that this question would be definitely settled at this time. Although he had done many operations by the abdominal method, he had thought it desirable to change to the other method in order to find out for himself its advantages and disadvantages. It was certainly true that the vaginal operation was not nearly so easily performed as was the suprapubic method, when the latter was done with the aid of the Trendelenburg position; yet for simple exploration there could be no doubt about the simplicity and great facility of the vaginal operation. This difference was so great that he believed for this purpose the abdominal operation would disappear from our text books. If the approach to the uterus were made between the bladder and the uterus, by a process of anteversion the appendages could be brought within easy reach. In very many cases the appendages could be reached sufficiently well from behind, but in about fifty per cent of the cases they were not accessible except through the anterior fornix. Where we could convince ourselves that in hematosalpinx and hydrosalpinx no attempt at conservation would be successful, all of the offending structures required removal. Where the tubes and ovaries were diseased so as to make them practically useless, and yet where they were not extensively adherent, they could be very easily removed by the vaginal method. Where the appendages were bound down by extensive adhesions, however, the vaginal method was hardly suitable, although it might be resorted to with advantage for the partial relief of bad septic conditions and with the intention of following it by the more radical procedure. In those cases in which the sepsis had advanced to such a degree that the patient's life was in danger, and the more usual methods of treatment had failed, should an operation be decided upon, then the method should be similar to that outlined already by Dr. Henrotin. It should not be forgotten that the vaginal operation was not attended by so much shock as the abdominal method, and in cases operated upon post partum the uterus could be removed in a much shorter time than from above.

Regarding the value of exploration, as touched upon in Dr. Henrotin's paper, the speaker said that in the average case of this kind there could be no question about the marked advantages of the infrapubic approach over the suprapubic one. The chief point raised in that paper was the special value of the vaginal route as a means of treating earlier stages of inflammation of the uterus and appendages where we had reason to believe the disease had extended beyond the uterus. This was a point which had been so well brought out in the paper alluded

to that not only the Society but the whole profession owed him a debt of gratitude.

Almost all of the tumors exhibited by Dr. Sutton could have been removed by the infrapubic route. The individual who had made it possible to carry out this vaginal operation was in our midst. It was well known that there were two methods of doing this work—(1) by the clamp and (2) by the ligature. His own observations had led him to the conclusion that whenever one had to work deep in the pelvis all the room that could be obtained was required, and hence, if the vagina were crowded with a number of clamps, the manipulations were necessarily carried out with much difficulty. In this class of cases, therefore, he favored the securing of all the bleeding points low down by ligatures, leaving the higher vessels to be controlled by the clamps.

DR. S. C. GORDON said that he had tried both methods, and his experience with the vaginal operation, although limited, had not been satisfactory. The results reported by Dr. Jacobs were certainly admirable, yet he did not believe as good work could be done by touch as by sight. Having once entered the abdominal cavity, he believed that anything could be done from above which could possibly be done from below. It seemed to him an objectionable practice to draw down the ovaries from below, for such a procedure resulted in a prolapse which could not be readily rectified in cases where it was found that there was after all no indication to remove these organs. This objection applied even to the anterior method suggested by Dr. Polk, although not with quite the same force.

DR. W. GILL WYLIE said that he did not accept the French statistics quoted by Dr. Jacobs. In his first fourteen cases he had lost three, and only five out of his first fifty cases. In the last sixty-one consecutive cases he had lost none. His experience with the infrapubic method included only seventy-four cases, with one death, yet it should be stated that they were selected cases, fifty-five of them being done for cancer. The fatal case was one with contracted kidneys. He thought that the general surgeon would always prefer the abdominal method. Where adhesions were high the vaginal operation seemed to him much more difficult, and under these circumstances he would not care to practise it.

DR. J. E. JANVRIE, of New York, said that he had had no experience with the vaginal operation except in cases where the uterus could be removed intact. He had, however, had quite an extensive experience with the vaginal operation in the removal of uteri with sarcomata or carcinomata. He believed that any growth which could be removed by the vagina entire should be removed in that way. He had had no experience with morcellation. He had during the past year removed in this way a cancerous uterus measuring six and a half inches in

depth, four and five-eighth inches in breadth at the level of the tubes, and three and a half inches antero-posteriorly. He had been guided by this rule: Any uterus, cancerous or sarcomatous, which could not be removed by the vagina, had, as a rule, so infiltrated the surrounding tissues that an operation should not be performed at all.

With reference to the removal of extrauterine pregnancies per vaginam, Dr. Jacobs had stated that usually in such cases the other tube was affected. Nine years ago he had read a paper in Washington in which he had made the statement that he had recognized tubal pregnancy as early as the fifth and sixth week and had recommended the removal of the tube and its contents. In a paper read by him two years later he had reported several such cases. At the time of the operation, in at least two of these cases, simple inspection had failed to show any evidence of disease of the other appendage.

DR. MCGONIGAL, of California, said that he had understood Dr. Jacobs to say that he would remove the uterus in non-suppurative cases of salpingitis and the like. His own experience had taught him that these cases could be cured by opening from above and probably also from below. It did not seem to him to be justifiable to remove the uterus without the presence of pus. It had occurred to him that in cases in which the appendix was the origin of the disease, and where it was intimately connected with the Fallopian tube, there was great danger of producing fistula by pulling down these organs from below. Out of seventy-two abdominal hysterectomies he had had no resulting fistulae.

DR. W. T. Lusk said that it was fortunate that we had these two methods to choose between. He believed that within a year we would conclude that where there were fibroids of moderate size and carcinomatous uteri the vaginal method should be adopted. He believed also that we would save the uterus and the healthy tube more often by operating from above than by operating from below. There was no class of cases in which the uterus and remaining tube were so apt to remain in a healthy condition as in tubal pregnancies. When we looked over the recent statistics of well-known operators, we found that there had been a very serious mortality in their first fifty cases, but that their later results had been uniformly superior.

DR. COE said that the relation of this operation to our private patients was extremely important. He had seen within the past few weeks three private patients who had stipulated that they should have the vaginal operation. Patients were becoming educated in gynecology as well as ourselves. The frequent complication of pelvic suppurative troubles with appendicitis had been touched upon by Dr. McGonigal. In some cases the diagnosis could be made, and certainly in this class the suprapubic method should be followed. He had operated upon four or five

cases where a few years before he had removed the appendages without the uterus. Nothing was easier than removing the uterus in these secondary operations by the vaginal method. This was a point deserving of considerable attention.

DR. ELY VAN DE WARKER said that, by a strange coincidence, the paper which he hoped to read before this Society touched upon the same technique that had been so well brought forward in Dr. Henrotin's paper. While theoretically we should remove an organ which had become superfluous and a source of trouble, there was a substitute for it in the method of incision into the pelvis and drainage, as described in Dr. Henrotin's paper. He could personally testify to the great value of that procedure.

DR. HENROTIN, in closing the discussion, said that in 1892 he had explained in the *AMERICAN JOURNAL OF OBSTETRICS* the same views which he now held. Vaginal hysterectomy was often very difficult and was never brilliant. He believed that in nineteen out of twenty cases of extrauterine pregnancy the other side was healthy and that the best method of treating them was to operate by the abdominal route. If there was apparently only one pus tube present he preferred the vaginal operation. For patching and repairing tubes the vaginal route was not suitable, but where drainage was required the vaginal operation should be done.

DR. WATHEN, in closing, said that he had emphasized the point that all cases were not operable per vaginam. The great difficulty was to decide just when a case was operable. He had emphasized the case with which abscesses in the broad ligament could be thoroughly drained before the peritoneal cavity was opened. He believed that the future would result in a mortality from vaginal hysterectomy, in properly selected cases, much lower than could be claimed by the most expert laparatomist of to-day. The worst cases had already given a mortality no greater than from laparotomy.

THE TREATMENT OF PUERPERAL ECLAMPSIA.

DR. THADDEUS A. REAMY, of Cincinnati.—My paper is a clinical one. On January 10th, 1888, I saw in consultation a robust German woman who had been delivered of her second child three hours before. Examinations of the urine during the previous month had been negative. The labor had been rapid. About half an hour after the completion of the labor she complained of frontal headache and impaired vision, and she was almost immediately seized with a convulsion. Another and more severe convulsion followed within half an hour. I gave hypodermatically Norwood's tincture of veratrum viride, twenty drops. Within twenty minutes the pulse had fallen from 125 to 70 and was soft and compressible. After about an hour the

pulse again became rapid and hard, and fifteen drops more of the veratrum were given hypodermatically and with an equally good result. An hour later she was conscious and the pulse was 50. The urine was examined and found to contain only a trace of albumin.

The second case was admitted to the hospital July 7th, 1890. She was in her first pregnancy, at about the eighth month. During July the urine contained albumin. On August 1st labor began, and at 7 A.M. August 2d a healthy child was delivered normally. At 5 P.M. it was noted that she had frontal headache. The next morning early she had a convulsion. The patient had several other convulsions during the next twenty-four hours, notwithstanding the administration of chloral and chloroform. Norwood's tincture of veratrum viride was administered as in the previous case, and an ice bag ordered to be kept on the head. It was necessary to continue ten-drop doses of the veratrum three or four times a day for several days.

On February 23d, 1889, I saw a woman who had been delivered of her third child after a hard labor. Convulsions were frequent and very severe, notwithstanding the free use of chloroform. The urine contained about six per cent of albumin by bulk. I administered hypodermatically three-fourths of a grain of morphia sulphate, and this gave her a sleep of many hours. After three days the albumin disappeared from the urine and she recovered without further trouble. The morphine was given because the pulse was weak, the patient very nervous, and the pupils dilated. I consider this a case of reflex convulsion.

The other cases were of the same general nature, and the same treatment was adopted. The promptness with which the convulsion was arrested just as soon as the action of the veratrum viride was evident on the heart was marked. This confirms the views expressed some years ago before this Society by Dr. Charles Jewett. The drug acts directly on the cardiac muscle and also produces vasomotor paresis. The profuse diaphoresis which it also produces is quite worthy of note. No doubt the acute cerebral anemia upon which the eclamptic attack depends is due to arterial spasm brought about by toxemia. The immediate arrest of the convulsions is important, for there is peril in the convulsions themselves. The remedy mentioned will not only arrest the attack most satisfactorily, but will also stimulate the activity of the kidneys and skin. Blood-letting within the range of safety will not produce these results so well, and the patient is none the worse after the administration of the veratrum viride, which certainly cannot be said of blood-letting. The treatment is not at all dangerous, as an adult, if kept in the recumbent position, may take half a drachm of the tincture without danger. If it causes much depression alcoholic stimulants will promptly produce reaction. It is also fortunate that morphia, which is very useful in counteracting any depression pro-

duced by the drug, is in itself a potent agent in controlling the convulsions.

THE PROPHYLAXIS AND TREATMENT OF ECLAMPSIA.

DR. EDWARD P. DAVIS, of Philadelphia.—I believe eclampsia is the result of a complex irritant poison, produced not only by failure of excretion of the kidneys, but by the failure of action of the liver, skin, lungs, and intestines. Mania as a precursor of eclampsia is well exhibited in the following case: She had been in good health until January 8th, when she began to suffer from disturbance of vision and intense headache. About noon she suddenly became maniacal and violent. This was quickly followed by a convulsion. On admission to the hospital, shortly afterward, she was comatose; the pupils equal and contracted; the pulse rapid. She was speedily delivered of still-born twins. After vigorous eliminative treatment the urine, drawn by catheter, showed but slight traces of albumin. The patient died four hours after admission, never having regained consciousness. At the autopsy the serous membranes were found to be exceedingly dry; the right heart was distended and flabby, and the left empty. The cortex of the kidneys showed fatty change. There was considerable hemorrhage in the retroperitoneal connective tissue. The uterine muscle was firm and the uterine cavity dry. There had been no effort at respiration on the part of the children, who had perished *in utero* from asphyxia. The liver was enlarged and softened.

The picture presented by this case resembles more a case of death from ptomaine poisoning than from uremia. In women of sensitive nervous organization premature labor is not an uncommon result of the toxemia. General edema is of minor importance in the latter part of pregnancy, provided the excretory processes are carried on actively. Toxemia is occasionally associated with fecal impaction, and is characterized by headache and malaise, with rapid and feeble pulse, and on examination the large intestine is found to be distended with hardened feces.

In my first series of eighty cases, in which five hundred and sixty-four examinations of the urine were made, I found the average percentage of urea was 1.4. This amount increases shortly after labor. In highly educated and intensely nervous women there is often melancholia or a premonition of impending danger. The nervous symptoms result from diminished excretion and the retention of toxins. No greater mistake can be made than the treatment of these cases by the administration of the bromides. The treatment should be directed to increasing the action of the excretory organs.

It has been my custom to determine by the percentage of urea the quantity of urinary solids excreted. I have found the method of Squibb very convenient, as it does not involve the

use of that very disagreeable agent—bromine. The diet should consist of meat, fish, birds, mutton, and an abundance of fruit. For restless patients with diminished excretion a warm bath at night will be found useful, and it will often promote sleep. The best treatment for puerperal eclampsia is a prophylactic one, but to carry out this successfully will require that the profession shall educate their patients up to a sense of the importance of their being kept under medical supervision during pregnancy. It is rare that patients suffer from eclampsia until it is precipitated by the irritation resulting from the beginning of labor. As so few of our patients are in perfect health, it cannot be said that labor is often a strictly physiological process.

Third Day, Thursday, May 30th—Morning Session.

DISCUSSION ON ECLAMPSIA.

DR. W. T. LUSK said that it was a favorite idea of Dr. For-
dyce Barker that puerperal eclampsia could be most successfully
treated by *veratrum viride*. Personally he had never dared to
give it in half-teaspoonful doses, either hypodermatically or
otherwise. The theory that had found most general favor was
that the majority of cases of puerperal eclampsia were due to a
reflex spasm of the vessels in the brain, and that the kidney
affection and the anemic condition of the brain were coincident
and were due to the same cause. Of course it was well under-
stood that the accumulation of excrementitious substances in the
blood gave the gravity to the situation in these cases, but the
convulsions themselves were apparently due to the reflex spasm
just mentioned. His own treatment of puerperal eclampsia had
been based on efforts to rapidly empty the uterus—a plan now be-
coming quite universal. The theory was that the accumulation
of excrementitious material, associated with the stoppage of the
function of the kidneys, led in a very short time to fatty degen-
eration of the heart muscle. The rapid emptying of the uterus
by removing the reflex causes led to the suspension of the con-
vulsions in about ninety per cent of the cases. These convul-
sions had been noted to come on most frequently just as the
head settled down into the pelvis. It was very important that
the uterus should be emptied while the patient was under an
anesthetic, and also that the anesthesia should not be too pro-
longed, as the latter was often in itself responsible for the death
of the patient. A deep incision should be made into the cervix,
and the child delivered, in multiparæ, in the course of half an
hour. In primiparæ it was better to use the dilator until the
cervix had been softened to a certain extent, and then to em-
ploy these deep incisions. Such a procedure would have been
considered very rash five years ago, but with proper antiseptic

precautions it seemed probable that this procedure could be carried out with entire safety.

DR. A. LAPHORN SMITH said that he hoped that the general tenor of this discussion would be in favor of the early emptying of the uterus whenever the obstetrician felt there was the slightest danger of puerperal eclampsia. Whenever the urine was decidedly deficient in quantity and laden with albumin he felt it was almost criminal to refrain from this measure. He had advocated this method of treatment for many years, and at the present time with much less opposition than formerly. It was very desirable, as soon as the patient was seen, to bring the patient under the influence of chloral and bromide by means of rectal injections, and so quiet the nervous system and hasten the dilatation of the cervix. It was also very important to give these patients water very freely, for examinations after labor showed that the urine was very scanty and loaded with solids. His plan was to place the patient near some source of heat and insist that she should drink very freely of water. If the patient could not be induced to take sufficient quantities of water—which was the best of all diuretics—he would give the water per rectum.

DR. GEORGE J. ENGELMANN, of St. Louis, said that he had seen the urine loaded with albumin so as to coagulate completely, and yet the patients carried safely to full term by proper medication. He felt that too little attention was paid to this unless striking symptoms were observed. The most important point of all was to insist upon a more careful and general medical supervision of pregnant women.

THE PRESIDENT said that he thought a cardinal point in the causation of these cases was not the albuminuria, but really a condition of renal insufficiency. In many cases the urine would be found entirely free from albumin up to the time of the appearance of the convulsions, yet it would be found that the daily quantity of urine had been greatly reduced for some time previously. He also believed that water was one of the very best of diuretics, and hence one of the best prophylactic agents in this class of cases.

He had had considerable experience with veratrum viride, and valued it as highly as Dr. Reamy did, although he had not given it in such large doses. Not long ago he had been called in consultation to a patient who was blue and cold, and apparently moribund, as a result of the free administration of veratrum viride by another physician. This physician had given the patient a teaspoonful of the fluid extract of veratrum viride, and this had produced such marked symptoms of poisoning that death had for the time seemed imminent. Since then he had not been so afraid to administer this drug, as the patient referred to had rapidly recovered from the poisonous effects of this large dose. It was evidently a drug that was very rapidly eliminated. He felt sure that he had saved a number of lives by the hypodermatic

use of veratrum viride in sufficient doses to keep the pulse down to sixty. If, however, the patient was weak and badly nourished, and the pulse was soft and rapid, he did not believe that veratrum viride was indicated.

DR. REAMY, in closing the discussion, said that he fully subscribed to all the statements that had been made in the discussion as to the necessity of frequently inquiring into the functional conditions of the kidneys during the pregnant state. The consensus of opinion at the present time seemed to be that an attack of puerperal eclampsia was directly due to toxemia, and that the only protection that every pregnant woman had against the accumulation of toxic products was through the health and activity of the lungs, skin, and kidneys. He did not believe that Dr. Smith's position on this question was tenable—viz., that the woman should always be delivered as soon as possible in cases in which convulsions occur. It should be remembered that in a large proportion of the cases reported in his paper the convulsions had not occurred until after delivery, and the same was true of most of the cases reported in medical literature for the past thirty years. Ordinarily the disease was not so fatal when the convulsions occurred at this time as when they first appeared before delivery, yet he did not think that the presence of the child *in utero* should constitute any very great danger. The process of forcible dilatation of the cervix and rapid delivery seemed to him to be productive of as much irritation as the usual continuance of labor. The object of his paper had been to demonstrate the view that veratrum viride would arrest the convulsion in a large percentage of the cases, doubtless by arresting the vasomotor paralysis and overcoming the cerebral anemia, and also by its effect in producing profuse diaphoresis and diuresis. This effect on the emunctories had not received, it seemed to him, the attention it deserved.

THE ULTIMATE RESULTS OF TRACHELORRHAPHY.

DR. WILLIS E. FORD, of Utica.—I shall refer in this paper to the results of trachelorrhaphy on nervous disorders. I have had an opportunity of personally observing many cases for years after this operation has been performed. Much has been said about reflex disturbances resulting from laceration of the cervix. A mass of cicatricial tissue in the cervix may often interfere with the circulation of the parts and so produce pain. Continual irritation of the afferent nerve may so disturb the ganglionic centre that the explosion of nervous influence may take place along another nerve leading from this centre. Cervical laceration is only an indirect cause of nervous disorders, and, if we exclude the term "reflex pain," we must say that a nervous disorder is improved by trachelorrhaphy only by the beneficial action of this operation on the general health. On the

other hand, there is a large number of cases which are made worse by an operation ; for, having been relieved of some symptoms by one operation, operative interference is constantly sought for for the relief of all sorts of pains and discomfort.

On looking up my own statistics regarding the ultimate results of trachelorrhaphy, I have found one hundred and thirty-six cases that I have carefully observed for periods varying from one to nine years after the operation. Slight rents where the membrane has healed and remained sound have never seemed to me to justify the operation. Out of these one hundred and thirty-six cases, sixty did not present any unusual nervous symptoms, and the operation was done for the usual conditions of ill health and pelvic pain. The recovery in all was satisfactory. In the other seventy-six cases there was marked neurasthenia. They had deep lacerations and enlarged uteri. I carefully repaired the cervix in each case and kept the patients in bed for about one month. In forty nine of the cases the recovery from nervous symptoms under proper treatment for a whole year took place. Twenty-five cases remained uncured after the lapse of one year, not as a result of any failure of the operation, because there was no remaining pelvic disorder, but because they were obstinate examples of neurasthenia. If the general health is not impaired at all the trachelorrhaphy does not materially influence the course of the nervous disease, such as neurasthenia, neuralgia, epilepsy, hysteria, etc. The reason for this is that these disorders have a deeper cause than any form of peripheral irritation. The recognition of this fact will prevent us from promising more from trachelorrhaphy or similar operations than they can be reasonably expected to do.

(To be continued.)

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Meeting of April 2d, 1895 (continued).

DR. GEORGE C. FREEBORN read a paper entitled

SUPPURATIVE LESIONS OF THE FALLOPIAN TUBE AND OVARY, WITH
DEMONSTRATION OF SPECIMENS.¹

DR. EDEBOHLS.—Dr. Freeborn has presented to us the pathological side of a question the practical aspects of which we are all more or less familiar with. But, as I take it, the therapeutical indications suggested by the specimens presented are not

¹ See original article, p. 48.

now under discussion. It is a question of pure pathology alone, and I frankly admit that I have nothing at all to add to the valuable pathological exhibit made here to-night, but would express to Dr. Freeborn my deep sense of obligation for the object lesson derived from the beautiful and instructive specimens shown, and which I have not seen equalled in any collection elsewhere.

DR. WYLIE.—I have nothing to say except to agree with Dr. Freeborn in most things, and to state that I have never before seen such a display of specimens of pyosalpinx. I hope the author will have them put in book form, so that they may have a wide circulation. This display reminds me of one made at Dr. Emmet's house a good many years ago, after he had come back from Europe, bringing with him a large number of specimens of pyosalpinx from Mr. Tait. That was the first introduction of the subject in that form into this country, and it made it so plain to me that I soon began to remove such diseased tubes, and have continued to do so since. No doubt it also helped many other young men to a more accurate knowledge of pyosalpinx, a subject which at that time was very little known. It is true Battey had introduced his normal ovariectomy, and I suppose some diseased tubes had been removed with the ovaries, but we did not understand pyosalpinx. I know I had seen but few cases. The first was in the Woman's Hospital twenty-five years ago, and it was such a rarity that I made a drawing of it, had it published, yet could get little information with regard to the condition. But on the evening already alluded to Dr. Emmet gave us information which certainly was the starting point of a practical study of pyosalpinx in this country, and the demonstration made here to-night shows what it has come to. How clearly have so many doubtful points been brought out and made perfectly plain!

DR. H. C. COE.—I feel that we are very much indebted to Dr. Freeborn for directing our attention to the anatomical side of this question, which we are in the habit of discussing here in a somewhat theoretical way. A review of our Transactions will show that we have theorized a good deal on the subject of tubal disease, so that it is well to come down to facts occasionally. Before Dr. Freeborn closes the discussion I shall be obliged to him if he will throw light on some questions which we have usually discussed more from the clinical than from the anatomical side. In the first place, as to aspirating a pyosalpinx or ovarian abscess per vaginam, what is the result anatomically? Can it be regarded as cured, like a pelvic abscess treated in the same manner? Or is the measure only palliative, requiring a radical operation later? 2. Cases have been reported where a double pyosalpinx has been cured and pregnancy has occurred subsequently. Is this possible? 3. We have heard it stated here by eminent gentlemen, but purely on clinical grounds, that it is

possible to drain a pyosalpinx through the uterus after curettage. If this is true, does the curette open up the uterine extremity of the occluded tube, or are contractions excited in the tube, as well as in the uterus, by the presence of the gauze drain, which force the pus out into the uterus? I must confess that I have always been sceptical about this from the anatomical standpoint. I recently removed a double pyosalpinx which had been treated in that way by another surgeon, who supposed that he had drained the sacs in this way, but I found the uterine ends of both tubes occluded in such a way that it would have been impossible for any fluid to escape. I think that this question cannot be settled clinically, for we all know how often a pyosalpinx seems large at one time, small at another, and how often we find simply a large, thickened tube where we had supposed there was a pus sac, or pyosalpinx has been diagnosticated when there is really an ovarian abscess.

4. Another point on which I would like some light is the question of the extreme virulence of pus from a true ovarian abscess as compared with pus from a pyosalpinx. We all know that the prognosis is entirely different according to which kind of pus comes in contact with the peritoneum. Is the difference due simply to a peculiarity of the abscess of the ovary, or to its usual proximity to the large intestine to which it is often adherent? Does the presence of colon bacteria account for it?

DR. FREEBORN.—Dr. Coe has sent a number of posers at me, and I shall only attempt to answer from the anatomical side. With regard to the first question, whether cure may not follow incising a pyosalpinx or suppurating cyst and draining through the vagina, I can see no reason why it may not, provided there is granulation tissue inside the cavity, the walls become coaptated and unite by granulation before the cavity refills. But if the walls were not to collapse I should think there would be great danger of reinfection through the vaginal opening, and obliteration of the pus cavity might not take place. With regard to the second question, drainage of a pyosalpinx into the uterus, my opinion is, based on an examination of these specimens, that it is utterly impossible, for I find that in almost all of these cases the lumen of the tube is completely obliterated by destruction of the mucous membrane and the formation of new tissue.

In reply to the fourth question, relating to the virulence of the pus, from the results of numerous bacterial examinations made by different investigators it may be said that there are always pyogenic germs in the early cases. In suppurating cyst of the ovary the pus becomes sterile at quite an early stage, so that the pus found later is due to the condition of the interior of the cyst, analogous to that of an ulcer. In such cases there is little chance of septic infection from spilling of the pus into the

peritoneal cavity. But in the early stage, where septic germs are still present, there is danger.

DR. RALPH WALDO related a case which he thought might have some bearing on Dr. Coe's second question. Last year, when sounding the uterus with a dull curette prior to using the sharp one for endometritis, the patient lying on the side, he found, when the instrument struck the fundus of the organ, that it was about the normal depth, but on reaching the left lower side, corresponding to the left horn, the instrument entered the full length of the handle without any force being used. Evidently it had entered some cavity, and, as no reaction followed, he had ever since supposed that it entered a dilated Fallopian tube. Under such circumstances he could conceive of a pyosalpinx emptying into the uterus.

THE PRESIDENT, DR. EMMET, remarked that inasmuch as there was no pus present in Dr. Waldo's case to indicate closure of the uterine extremity of the tube from granulation tissue, as described by Dr. Freeborn in pyosalpinx, the case hardly had a bearing on the question.

DR. JARMAN thought Dr. Freeborn might not have understood Dr. Coe's last question, which was, why in true ovarian abscess the pus should be more virulent.

DR. FREEBORN said that his previous reply had referred to suppurating ovarian cyst. It was different in true ovarian abscess, for here the pus was exceedingly virulent.

Replying to an interrogatory by the President as to whether there was a time limit which would enable one to classify an ovarian abscess as early or old, he said he knew none; it was rather the condition of the abscess. He supposed, however, that there might be a fresh infection, rendering an old one again virulent.

DR. COE having referred to the influence on virulence of adhesion of the bowel and possible infection by the bacillus coli communis, DR. FREEBORN said he was unable to throw any light on that point. Personally he felt that a great deal had been laid at the door of the bacillus coli communis which it was not justified in shouldering.

DR. CURRIER asked Dr. Freeborn whether it was not a fact that in young women the pyosalpinx process was usually more virulent than in those who had reached middle life—owing, perhaps, to a difference in the vitality or virility of the epithelium.

DR. FREEBORN replied that he had no information on that point.

DR. CURRIER had noticed that, in gonorrheal cases especially, the process was more intense in young women than in those near middle life.

DR. WYLIE added that early in his experience he had noticed that pyosalpinx seldom occurred in women who had not borne children or had abortion. Probably not more than one or two

out of twenty failed to give a history of abortion or childbirth. If, however, there was a fibroid, or enlarged condition of the uterus from some cause, pyosalpinx might arise. He asked Dr. Freeborn's experience in this regard.

Dr. FREEBORN could only state that he had specimens of pyosalpinx which were removed from women who never had been married and who never had a miscarriage. He could not state their frequency.

Dr. WYLIE remarked that there were such cases, but the question was, How frequently did they occur?

Dr. BOLDT said they did occur, but they were rare. He could recall a case of double pyosalpinx in a patient who, he was sure, was a virgin.

Stated Meeting, April 16th, 1895.

The President, BACHE McE. EMMET, M.D., in the Chair.

Dr. W. R. PRYOR presented two uteri from cases of puerperal septicemia without peritonitis; one removed at autopsy after Cesarean section by Dr. Edgar, the other removed by himself by abdominal hysterectomy.

Dr. Pryor added that these made seven cases altogether seen by him of puerperal sepsis without any lymph in the peritoneum and with normal tubes, in which the patients had died or would have died without operation. The other five had occurred in the practice of different men.

HYSTERECTOMY FOR PUERPERAL INFECTION; RECOVERY.

A. von B., æt. 27, single; Holland; domestic; confined March 16th, 1895, the labor being "pop" and the usual antiseptic preparation impossible. Perineum slightly torn and sewed with silkworm gut. For nine days the temperature was taken and was never above 100°. For four days more no temperature was taken. March 30th, at 3 p.m., she had a headache and seemed warm; her temperature taken and found to be 104.4° rectal, pulse 110, respiration 28; no odor to lochia, no chill. This was fourteen days after confinement. She was purged and given grs. xv. quinia. March 31st, at midnight, she received by rectum antipyrin grs. xv., quinia grs. xx. Little impression made upon the temperature. March 31st, 6 p.m., the uterus was washed out with several quarts of boric acid solution and the temperature fell to 103; she received grs. xv. quinia on this day. At 3 a.m. April 2d she had a temperature of still over 103°, it having been 105.4° at 11 p.m. on April 1st. In two days she had received grs. xxx. quinia by mouth and grs. xx. in solution by rectum with no appreciable effect. I examined her April 1st and found the torn perineum ununited and covered by false membrane. There was very little lochial discharge, free from odor. Uterus soft,

in good position, a little sensitive to pressure. I determined to curette the uterus. April 2d, at 3 P.M., her temperature being 101° (after antipyrin) and pulse 140+, I began to curette. I found the uterus much broken down, the curette bringing away large shreds of uterine tissue; the bleeding was very severe. Believing the uterus to be in a condition of beginning gangrene, I made the Ségond incision and applied the forceps to the uterine arteries. The cul-de-sac was easily opened. In dissecting up the loose bladder my index finger perforated the anterior uterine wall very easily. The tissue being so friable, I put the patient into Trendelenburg's posture and removed the uterus from above. The stumps of the uterine arteries were so rotten that ligatures cut through and I had to apply forceps. The ovarian arteries held the ligatures very nicely. A very large Mikulicz was made, completely isolating the pelvis, the two forceps on the uterine arteries sticking above the dressings. The vagina was packed with gauze. Transfused into median cephalic vein O i. salt solution. Pulse at this time was 160—it dropped to 128. Changed the Mikulicz April 7th; second Mikulicz April 10th, and removed one necrotic stump of uterine artery. April 13th, third dressing and removed the other blackened stump. The patient has received no quinia since operation, and the temperature has steadily fallen until now it is normal, with a normal pulse. She has never vomited, has had but one slight chill, coming on the 9th and running the temperature up two degrees. She still has in a small Mikulicz, and the vault of the vagina is open, giving through-and-through drainage, but the discharge is scant and serous in character. The incision was covered by false membrane for a week after operation. Her child has sore eyes, and the gonococcus has been found in the eye discharges. I am having cultures made of the fluids from the woman. At the time of operation I found absolutely no sign of peritonitis anywhere, no lymph, no pus. The uterus was remarkably soft and exceedingly dark in color.

Dr. W. R. Pryor also reported the following:

Through the kindness of the operator I am permitted to show another specimen. E. S., æt. 22, married, Ipara. Spinæ ilii eight and one-half inches, cristæ ilii ten inches, internal conjugate two and one-half inches.

Dr. Edgar performed a very rapid and pretty Cesarean section. Silk suture in uterine muscle and catgut in peritoneum. Child weighed five pounds one ounce. The operation lasted forty minutes. Patient syphilitic, with mucous patches on vulva; temperature at end of twenty-four hours 100.4° , pulse 106. Patient died on twelfth day after operation with a temperature of 106.2° . The case will probably be reported more fully. Child alive.

What I wish to draw your attention to is the absence of peritonitis in both these full-term septic cases. I operated upon

mine three days after the rise of temperature was detected. In the Cesarean case the autopsy was held nearly two weeks after the operation and eleven days after the temperature rose. In neither of these cases was there peritonitis, although in the last case the infection proved fatal and caused a most severe pleuritis. It would appear that in certain cases the infection checks the vital forces in the uterus so suddenly as to render the production of lymph impossible upon that organ. It is literally a gangrene of the uterus. How to determine when this form of virulent infection comes on is, of course, most difficult. In my case I was impelled to the hysterectomy by the character of the uterine muscle as determined by the curettage. It is interesting to note that both cases were venereal. It is also difficult to account for the latency of the infection, in my case its coming on the fourteenth day. So far as surgery is concerned, I believe it is yet to be formulated.

Both specimens show the tubes uninvolved. The discoloration is greater, the breaking-down of the uterine muscle more advanced in Dr. Edgar's specimen, and in his there is the incision of the section. But practically both uteri are alike in the absence of tubal disease and peritonitis. Taken in conjunction with uteri which have been shown from cases dying after criminal abortion, we are forced to believe the absence or presence of peritonitis of no value whatever as an indication of the mode of infection. Certainly cases which are fatal most rapidly are the very ones which are most free from peritonitis, while those that die after a prolonged infection present the most varied peritonitic changes. We are yet to learn the causative factor or factors for this, and until we do know them the surgery of these cases cannot be definitely settled and must be largely governed by such conditions—emergency conditions—as presented in mine.

DR. G. C. FREEBORN also presented specimens from a case of puerperal septicemia without peritonitis or tubal trouble. It likewise showed the result of ventral fixation of the uterus.

UTERUS SHOWING THE RESULTS OF VENTRAL FIXATION AND OF SEPTICEMIA FOLLOWING THE DEATH OF THE FETUS.

The specimen was removed post mortem from a woman whose history is as follows: After fixation of the uterus—the exact time I was unable to find out—she became pregnant and went on to the fourth month, when the fetus died. It was removed and the uterus curetted. After the curetting she began to show symptoms of septicemia. The cavity of the uterus was irrigated three times a day, but notwithstanding this there was a free flow of purulent matter from the vagina. At the end of about a week the woman died of septicemia.

The uterus was soft and the tissues friable in the fresh state.

It measures fifteen centimetres in length and ten centimetres across at the fundus. Section shows the cavity dilated and covered with necrotic and purulent matter. In the posterior wall of the cervical canal, at a point four centimetres above the external os, there is a transverse, ragged cut two and a quarter centimetres in length. Longitudinal section through the central portion of this cut shows that it extends into the wall of the organ for about two millimetres and communicates with a sinus which extends back to within two millimetres of the posterior surface of the wall of the cervix, then, turning nearly at a right angle, it passes to the right through posterior wall and communicates with an abscess in the right broad ligament.

Attached to the fundus of the organ is a portion of the anterior abdominal wall. This attachment is dense fibrous tissue, the result of the ventral fixation.

The abscess of the right broad ligament, and its communication with the cavity of the uterine canal by the above-described sinus, account for the free discharge of pus from the vagina. The cut in the tissue of the cervical canal was, in all probability, made at the time of the curetting, and may have opened into the sinus, which might have existed for some little time and have been the result of the burrowing of the pus from the abscess.

SPECIMEN SHOWING THE PRESERVATIVE ACTION OF FORMALIN.

The specimen consists of portions of the wall of a papillomatous cyst of the ovary which has been preserved in a two-percent solution of formalin in water. The entire inner surface of the cyst wall was studded with small masses of papillary growths, many of which have become cystic. In addition there are various sized patches of yellow-colored material. The specimen is still in the formalin solution and shows the natural colors nearly as well as when fresh. The small cysts are perfect, showing no shrinkage. The specimen has been in the preservative fluid for exactly one month.

DR. R. A. MURRAY said he wished to speak of two points in connection with the cases presented, although he had heard but a portion of Dr. Pryor's remarks: first, with regard to the occurrence of general septic infection without involvement of the peritoneum; second, the syphilitic character of these cases. The presence of syphilis in puerperal patients ought always to be carried in mind. He had seen the epidemic of puerperal fever in Bellevue in 1872, and remembered that it started in a case of syphilis involving the external genitals. There had been cases in that hospital prior to that, but these were of peculiar character, showing a false membrane in almost every instance. Dr. Murray had observed the membrane, not only on the external genitals, but also in the vagina, and even as high

as the placental site in the uterus. There was one peculiarity about the cases—namely, absence of any marked peritonitis and presence of intense septicemia. There was great collapse, tenderness and bogginess, if not actual necrosis, of the uterus. The organ could easily be perforated. The patients passed into the last stages of septicemia with involvement of other organs, such a condition as they had formerly had of pyemia and septicemia in the surgical wards of Bellevue.

When at one time he had had the assigning of cases of midwifery to students at the University Medical College, it was a common thing to see these syphilitic cases, even after normal confinement, have fetid lochia in spite of every precaution taken to prevent infection. Some would not have any marked rise of temperature, but the lochia would be fetid and the curette would bring away a whitish, cheesy-looking material such as one frequently saw in tonsillitis during secondary syphilis. He had observed this condition many times, and used to call the attention of the house staff to the peculiar appearance of the débris brought away by the curette. If in such cases one sewed up a lacerated perineum or cervix it would almost surely fail to heal. This, of course, increased the liability to infection from the lochia.

Another peculiarity about the cases of puerperal sepsis with this membrane was that the uterus would be found involved while the peritoneum was free. The patients almost invariably died when the uterus became involved, but if treatment were begun while the membrane was limited to the vulva the disease could usually be controlled. The general practitioner, seeing but few such cases, failed to examine the vulva and neglected the proper treatment. Consequently patients of this kind seen in consultation in private practice had almost invariably died. Dr. Murray's attention had first been called to the vulva by an erysipelatous rash occurring on the thighs and abdomen in two cases. After that he had examined the genitals as soon as any symptoms developed.

The use of the curette in such cases had not been followed by much benefit. One could use it until he felt that firm tissue must have been reached, yet the whole organ was so necrotic that the patient went on to die rapidly. Dr. Murray had been called to see a case two years ago with Dr. Fruitnight. The woman had been delivered by a nurse, had not been touched by Dr. F.; she developed intense sepsis within twenty-four hours. Dr. Murray saw her at the end of thirty-six hours: diphtheritic membrane was present; there was no evidence, from external examination, of peritonitis, yet the patient died at the end of forty-eight hours. He felt almost certain that, had the abdomen been opened, no membrane would have been found on the peritoneum. The nurse had previously attended a case which died of septic peritonitis.

DR. H. N. VINEBERG recalled a case which he had seen in the country some years ago. A woman had given birth to a decidedly syphilitic child about the sixth or seventh month, and following it she had a very severe form of septicemia. She passed into coma, had a very rapid pulse and a temperature of 104° F. The uterus was irrigated with bichloride solution. No detritus came away. Following the irrigation the woman would come out of her comatous condition, the temperature would fall to about 101° , but the symptoms would return as before at the end of four or six hours. He tried other antiseptics, but none had the effect of the bichloride, and his impression was that the bichloride was probably absorbed to some extent and acted in that way. Consequently he began the administration of iodide of potash and bichloride internally, and the woman recovered completely after three or four weeks. But for four or five days, or longer, the coma, the stertorous breathing, the rise of temperature, etc., had recurred regularly some hours after making the bichloride injections.

Dr. Vineberg said he had been interested in Dr. Pryor's case of late infection after labor in a patient who had gonorrhea. Several cases of this sort had been reported by Krönigt, and Dr. Vineberg himself had had two. In one the septic symptoms developed the third week, in the other the second week, after labor, and in both there was gonorrhea. One of the characteristic features of gonorrheal infection was its later development.

DR. E. A. TUCKER thought that cases of late puerperal infection were really cases of early infection which had remained latent. That is, the woman became infected about the time of labor, but as long as she remained in bed septic symptoms did not become manifest. He had seen so many cases of that kind that they had impressed themselves upon his mind. The septic symptoms became evident only when the woman got up about the tenth or fourteenth day and made some exertion. Merely sitting up or walking around would bring out symptoms which had not been manifest before. He had seen such a case last week. The woman had passed ten days after labor with an ideal temperature; she then sat up a couple of hours, and the temperature, preceded by chill, rose to 104° F. and followed a characteristic septic course for three or four days. Nothing was found in the uterus in that case. Gonorrheal or syphilitic infection might account for some of these cases, but this woman certainly had neither. In some instances he had found a small piece of membrane or tuft of placenta, and as soon as this had been removed all the symptoms had disappeared.

Regarding the influence of syphilis on the puerperal state, he could not agree with Dr. Murray that syphilitic women were more liable to sepsis after confinement than were other women. He had been taught that they were more liable, had read it, and had expected to find it so, but his experience had since been the

other way. The past few years he had confined quite a number of syphilitic women, and although some of them had had elevation of temperature, a great many had not. Those whom he had expected to do badly, patients with many symptoms of syphilis, had had a normal temperature, so that he had come to the conclusion that, if a syphilitic were not infected with ordinary puerperal sepsis and was kept under syphilitic treatment, she would do just as well as a woman who had not syphilis.

They had had at the hospital only the last month a woman with chancre of the vulva, with an indurated area on the right labium and perineum which tore through down to the sphincter ani, leaving a large raw surface for the absorption of sepsis. The surface was kept clean by frequent washing. She was given a third of a grain of bichloride of mercury daily. She rallied quickly from her labor, felt in excellent condition, had a normal temperature, and was discharged into the care of an outside physician at the end of two weeks, feeling better than she had before entering the maternity. Of course no attempt was then made to sew up the perineum, as it would almost surely have resulted in infection.

Dr. Tucker said he had understood Dr. Pryor to say that the most rapidly fatal cases of puerperal sepsis were those which showed no peritonitis. In his own experience the opposite class had been most rapidly fatal—cases of peritonitis with enormous distention of the abdomen. In one case of that kind, a woman infected by two homeopaths, who had during ineffectual attempts at delivery torn the vagina and done much other damage, was brought to the hospital and was delivered by craniotomy of a child already dead from fracture of the skull. She died within forty-eight hours, during which time the abdomen had become enormously distended. The autopsy showed gangrene extending as high as the left kidney, and marked peritonitis.

Dr. A. F. CURRIER thought cases of puerperal sepsis could be divided, so far as treatment was concerned, into two classes, according to whether they were seen in private or in hospital practice. Take the case presented by Dr. Freeborn in which there was an abscess in the posterior wall of the uterus, and in all probability general infection existed. Assuming that the patient could bear the shock of an operation, he doubted very much whether an operation would do any good. The patient was so thoroughly septic that death would almost surely result in any event, and the shock of the operation would simply hasten it. Yet if we simply enucleated and the patient died we might reproach ourselves for not having done something more heroic. On the other hand, if hysterectomy were performed and the patient died, we would again reproach ourselves for the interference. Therefore the treatment of these cases presented a problem for serious and earnest consideration, and all cases which had a bearing upon its solution would prove of value.

His own experience with abdominal operations in advanced cases of puerperal sepsis had been disastrous. He would be glad to have light thrown upon the subject.

DR. W. T. GIBB related the following case of latent septic condition of the uterus after parturition: A woman of 25, married five or six years; first child; labor normal in every respect. She went along in perfect condition for a week, with normal temperature and pulse. At the end of the eighth day she had a slight rigor, followed by a temperature of 103° F. He was called immediately, curetted the uterus and packed it with iodoformized gauze. The temperature fell slightly. At the end of twenty-four hours he took the gauze out, washed out the uterus, and repacked it. There was no discharge from the uterus, no tenderness, no odor, nothing to indicate trouble in that organ. Nevertheless he had curetted and packed the uterus, and, since there was no improvement in her condition, he called Dr. Polk, who thought she had septic infection and advised continuing washing and packing the uterus. There was no tenderness over the abdomen, nothing pointing to peritonitis; the uterus was firm. She lived two weeks in this septic state, and died. During the last two days general peritonitis developed and the temperature went up to 106° F. He would like a suggestion as to the exact nature of the case. He had been very careful to guard against sepsis during the confinement. The tubes seemed normal.

DR. MURRAY wished to correct what seemed to be a misapprehension of his remarks. There were three kinds of peritonitis—lymphatic absorption causing peritonitis, and peritonitis by extension from the uterus through the tubes, and through the veins. What he had intended to say was that, according to his own observation, absorption of septic matter through the veins was usually much more fatal, and much more quickly fatal, than either lymphatic or extension peritonitis. In the case related by Dr. Tucker there had been traumatism, and absorption might have taken place through the veins as well as through the cellular tissue and lymphatics.

DR. CLEMENT CLEVELAND was led by Dr. Gibb's remarks to say that he had given up gauze drainage of the uterus entirely, for the reason that he had not been satisfied with the results. He thought he got better drainage without gauze. In packing the puerperal uterus with gauze it was quite pertinent to ask whether the packing might not be done too closely and thus stop drainage rather than facilitate it.

DR. H. N. VINEBERG presented

A DERMOID CYST OF THE LEFT OVARY PRESENTING AN UNUSUAL
FEATURE.

The patient was 30 years old, married six years, and had never been pregnant. Menstruation set in at the fifteenth year and was irregular, recurring every six to eight weeks. After

marriage the menses stayed away for eleven months and the patient thought herself pregnant, the increase in size of the abdomen keeping pace with the supposed period of pregnancy. After she had passed the ordinary term and labor did not set in, her physician made an examination under narcosis and ascertained the cause of the enlargement to be due to a "phantom tumor." Subsequent to this the menses were absent for six months at two different times. Then for three years the menses were regular, recurring every four weeks. But at my first consultation, on March 27th, 1895, she had not menstruated for seven weeks. For the past year the menses were attended with a great deal of pain; prior to that they were painless. For the same period of time she has suffered from severe backache, occasional pain in the left groin, headaches coming on at night and lasting about three hours, dyspareunia, loss of flesh (having lost forty pounds in weight), anorexia, malaise, and constipation.

She is a large woman, of fairly good color, and has a moderate amount of adipose tissue. Lungs, heart, and kidneys normal. Bimanual examination shows the uterus to be crowded toward the sacrum and left side by a pelvic tumor in median position the size of a fetal head. The tumor is freely movable, but owing to the thickness and rigidity of the abdominal walls it is difficult to ascertain whether or not it is connected with the uterus. It varies in consistence, feeling hard like bone or cartilage at some points, and is slightly sensitive.

A probable diagnosis of dermoid of the ovary was made.

I performed abdominal celiotomy on April 3d. On entering the peritoneal cavity and finding the tumor presenting the characters of a dermoid, I enlarged my incision so that I could deliver it entire, which was not an easy task, owing to its spherical shape and smooth surface. The right ovary was considerably enlarged and appeared to be diseased at its distal pole. About one-third of this portion of the ovary was excised and the wound in the ovary sutured by a continuous catgut suture.

A subperitoneal fibroid tumor, the size of an English walnut, was found attached to the posterior aspect of the fundus of the uterus. This was enucleated, as well as a smaller one a little lower down on the uterine wall.

The patient is making a good recovery, interrupted only by a small mural abscess in the lower angle of the abdominal incision. The dermoid tumor on being incised was found to be filled chiefly with a thick, purulent fluid and partly with smegma thickly interspersed with hairs. The unusual feature of the specimen consists in two sets of teeth implanted on the inner wall of the cyst—one set consists of two rows, two teeth in each row; the other has a single row of two teeth. Lying between these is a grayish body, seven centimetres long and one centimetre in thickness, attached at either end to the inside of the cyst wall. An incision into this body exposes a few rudimentary teeth.

Dr. P. F. CHAMBERS presented for Dr. G. C. McGANNON, a non-member,

A SPECIMEN OF EXTRAUTERINE PREGNANCY.

Mrs. A., age 24; married two and a half years; one miscarriage at two months two years ago. Menses regular until period due March 12th was missed. Some nausea and tenderness of breasts; thought to be pregnant. April 3d, had pain on right side, referred to a point midway between ribs and ilium; whole abdomen tender; bowels very constipated; several days previously temperature 100° , pulse 108. April 5th, tenderness, slight sanguineous flow, temperature $99\frac{1}{2}^{\circ}$, pulse 104. It continued so until April 12th, when, under chloroform, diagnosis of extrauterine pregnancy was made. April 15th, abdominal section; free blood and a great quantity of clots found in peritoneal cavity; right tube distended and bleeding from rupture. Specimen presented removed; abdominal cavity well washed out and closed. To-night patient going on well.

Official Transactions.

ARTHUR M. JACOBUS,

Recording Secretary.

(To be continued.)

TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY.

Meeting of December 20th, 1894.

The President, THOMAS P. WHITE, M.D., in the Chair.

DISCUSSION ON HYSTERIA CONTINUED.

Dr. C. A. L. REED.—I am interested in the paper by Dr. Ransohoff. But there are some observations which show misconceptions. The statement is made, and with a certain amount of truth, that there is an obvious and demonstrable difference in the sensitiveness of the nervous systems of the two sexes, and that this difference is shown in the responsiveness of the male and female respectively to conditions of irritation in the pelvis, and yet I believe the difference is not so pronounced as one might infer. While it was not stated, still the legitimate inference could be drawn from the phraseology that all cases in the female in which there are certain adhesions of the tubes, ovaries, or uterus impinging upon the bladder show reflex symptoms, while in the male with a corresponding lesion you do not have these manifestations. It is true we might have adhesion of Meckel's diverticulum but have no particular nervous manifestations. It is true that in many

instances you may have the vermiform appendix embedded in a mass of adhesions and have no pronounced symptoms of nervous disorder. Now, in reference to the theory that the male pelvis does not manifest these reflex phenomena under those circumstances, I can cite a case that was referred to me by a practitioner at Independence, Ky.: a young man, 22 years of age, with most marked choreic phenomena dating back to a traumatism received four years previously in the right iliac region. The boy had been bed-ridden for five weeks, and there had been persistent pain from the time of that injury until he consulted me. I made an incision and found great bands of adhesion about the head of the colon, and the vermiform appendix, which I do not think had been the seat of the primary difficulty at all, was bound down in this same exudate. The operation relieved those adhesions. The patient made a prompt recovery, and is to-day, two months after the operation, well and hearty, without a single evidence of choreic disturbance. I am not aware that such cases are extensively duplicated, but certainly this one points to the fact that we do have these reflex disturbances. And why should it not be true? Why should not any condition which nags the nervous system provoke a condition of revolt, the manifestation, if you please, of organic disturbance, in certain cases in which the cause has been of sufficiently long duration? Now, on the other hand, my observation is to the effect that it is only the very minimum of women with pelvic lesions who have reflex phenomena. I have examined many women with profoundly retroflexed uteri and no distinct nervous trouble. I find women with extensive disease of the ovaries and the tubes in whom there is no particular manifestation of nervous disturbance other than that general impairment of function which comes from long impairment of health. I find women with long-existing fibroid tumors in whom there is no nervous perturbation. Therefore I think we cannot establish any particular difference in this regard between the two sexes.

Now, when Prof. Ransohoff replies, I wish he would kindly address himself a little further to the elucidation of urethral fever—the traumatic changes that follow catheterization. Are there always evidences of septic infection? In what number of cases do we have a purely neurotic manifestation of temperature variation? I ask this question for the reason that while this seems to be a very common, practical, every-day observation in the hands of the general surgeon, it is one that very rarely falls under the observation of the gynecologist. The female urethra can be catheterized with more impunity than the male urethra—another circumstance which it seems to me tends to prove that the male urethra is generally more responsive to reflex disturbances than is the female. These are very interesting problems.

DR. JOHNSTONE.—It seems to me the cases of urethral fever I

had while doing general surgery were not so much from peripheral irritation as from septic poison, and I hope the reader will tell us more fully in regard to that. His idea is that urethral fever is an absorptive fever; in other words, the male urethra is so much longer than the female that you are likely, in passing a sound, to cause some abrasion. I remember one very striking case in my own practice, a man with an extremely tight stricture. He went for a year or eighteen months without our ever being able to get through the urethra from the meatus; even a filiform bougie during that time would cause a chill and temperature to 104° or 105° . But finally he told me I had to bore through if it killed him; he was not going through life with a solid organ. I laid the urethra open from directly in front of the annus up to the scrotum. I found about half of the urethra converted into scar tissue. After the operation he never had a temperature as high as 100° . Thus it seemed the condition was septic. But I have seen other cases in which the gentlest passage of a catheter would bring on a chill.

As to vesical reflexes, I remember, in my student days, a case of stone in the bladder in which, every time the man wanted to urinate, he would have a pain in his left shoulder. That was in the time of Ferguson, so we know even the old surgeons had some idea of the reflexes.

I had one unique experience. An inveterate masturbator, 30 years old, was brought to me by his uncle, who wanted me to take the fellow's testicles out. I found a very long foreskin, which kept the glans in an extremely sensitive state. I circumcised him and the masturbation was cut absolutely short. Whether it was one of those queer, unusual cases of a mental impression may be a question. It seemed to be a case in which a peripheral irritation kept the nerve endings very sensitive.

We cannot thank these surgeons too much for giving us these papers. I am sure I have learned much, and in closing I cannot do better than to tender the thanks of the whole Society. The difference between the male and female is in the monthly congestion, the Stephenson wave.

DR. STEWART.—It seems to me the Stephenson wave may have a great deal to do in this, but there is something more in the female than the Stephenson wave. The woman is different from the male in a good many ways. I believe man is hardened, his nervous system is insensitive, and his nerves are toughened, if you please; whereas the woman is more retiring and her nervous system is more highly developed, but when she is out in the world and leads a life similar to the male she has about the same condition the man has. A woman came to me recently complaining of a pain in her back, and it was absolutely impossible to get any other symptom from her. An examination revealed carcinoma of the cervix. This woman showed no symptoms whatever, no neurosis, no nervous disturbances, or, at least, no

more disturbance than there would be in a man; and this condition was undoubtedly largely due to the fact that her nervous system was not as highly developed as it is usually in woman. Therein, I believe, lies the difference in the reaction or irritability of the nervous system of the two sexes. One of the speakers has referred to there not being very much difference in the reaction. I think he is right to a certain extent.

DR. PALMER.—I would request Dr. Ransohoff to speak a little further in reference to the nervous disturbances which may come from an elongated prepuce.

DR. REED.—The doctor referred to the secretory reflexes, and as an illustration mentioned the fact that an operation upon one kidney often resulted in the abatement of function in the other. I shall be greatly pleased if he will explain in what number of instances that is due to reflex causes and when to the anesthesia.

DR. RANSOHOFF.—Probably some twenty cases have been reported in which operation upon one kidney had in three or four days to be followed by an operation upon the other. In the case upon which I operated the kidney from which a stone was removed did very little work, and after about two weeks the patient stopped urinating altogether. The most careful catheterization failed to bring any urine from the bladder. This condition was permitted to go on forty-eight hours, while the usual treatment was employed, and then the opposite kidney was opened and suppuration found within. How the suppuration developed in so short a time we could not tell. Before the first operation was done it was shown quite conclusively that on the left side was a pretty healthy kidney. It is not improbable that reflex changes in the kidney stopped excretion of urine, and then a downward and upward infection had taken place. I cannot conceive of the presence of pus upon any other grounds than that. In regard to the suppression of urine following anesthetization, I have never seen it. I have seen the amount decrease, but never cease. My opinion is that the cases in which there is a diminution in the quantity of urine are not from the anesthesia so much as from the shock. The circulation is lowered in its tone, less blood is thrown into the kidneys, and consequently less urine excreted. That is the explanation I would offer of the diminution of function.

In regard to reflexes from elongated prepuce, I think they have been very greatly overestimated. As to the total abeyance of masturbation in the individual mentioned, after being continued some twenty years, I am sceptical. After a man has practised that habit twenty years or so he usually is unable to practise it longer for reasons quite obvious. I have seen nervous disturbances with elongation of the foreskin in children, but that they were the result of the elongation of the foreskin itself I am in doubt. The elongation of the foreskin usually causes trouble by retaining some of the urine. The retention and

decomposition of the urine probably produce the reflex neuroses. I have seen only one case in which chorea was doubtless produced by an elongation of the prepuce, but I have seen many of these cases in which the children looked pale and nervous, and they have been cured of their abnormal general condition by removal of the foreskin.

Regarding the question of adhesions, I am glad Dr. Reed saw so well the point I tried to make in the paper.

There can be no doubt that there is a difference in the sexes. I have seen a great many adhesions to the external genitalia and the testicles in the male, but I have never seen a single case that I can recall in which a neurosis has developed from such adhesion. Let us take, for example, fluid in the tubes, which is represented nearest in the male by hydrocele. I have done the radical operation for hydrocele, I am afraid to say how often, without having seen a single case in which reflex disturbance of any kind resulted. It is true the testicle is on the outside and can be seen by the man and he knows it is all right, while the ovary, on the other hand, is inside and the woman is likely to imagine a trivial lesion is of some magnitude. There is a little difference between the adhesions in the male and the female. Practically we see no adhesions in the male pelvis; once in a while we encounter an adhesion, may be, between the rectum and bladder, but the man has enough disease there to forget all about the reflex excitation, if that can be established.

In the paper I contended that all reflexes in the male come usually from superficial lesions, while in the deep lesions there are practically none.

In answer to the question regarding urethral fever, as to when it is a neurosis and when a septic infection, I think very well defined lines can be drawn. In the vast majority of cases the urethral fever is a traumatic fever, a septic fever. About that there can be no question. If internal urethrotomy be done in the lower portion of the urethra, we find almost invariably some reaction, and this does not occur unless there is some obstruction in the genito-urinary tract. In the deep-seated strictures there will be found not only alteration in the urethra and bladder, but also septic change in the kidney; and if there is anything well established it is that, in cases of suppuration in the kidney, manipulation of any kind about the urethral or vesical tract will be almost certainly followed by change. That such a case, which is an illustration of the majority, is septic there can be no question. But take a man with a stone in the bladder and scarcely enough pus in his urine to be detected except under the microscope, where no pus at all can be found upon examining the urethra, and let such a man wash out his urethra, cocaineize his urethra and bladder, sterilize the instrument with which you examine him, and he will often have a chill before he is off the table. That is not the history of a septic fever. If you do an

internal urethrotomy you leave your patient in the morning and he is comfortable, and he is comfortable in the evening, and it is twenty-four to forty-eight hours before he has his rigor. A reaction within a few hours can scarcely be considered a septic fever.

I thank the gentlemen very much indeed for the courtesies they have extended me.

DR. TAYLOR.—I am glad Dr. Thrasher opened his essay and closed it with the very decided statement he has made. I do not believe we can have reflex manifestations of disease which are entirely functional. There must be some organic lesion. We do not always discover it, simply because of the limitations of our powers as observers. We all know that from time to time a disease looked upon as reflex or functional is transferred to the class of organic diseases. So I believe it is here.

An acquaintance of mine was commander of a portion of the forces during the battle of Perryville. He was using his voice considerably at a high pitch and became aphonic, and because of this was invalided and transferred from his command, and remained here for a year without his voice. At the end of the year there came one of those wonderful doctors who cure by magic, and the captain in his desperation went to see him. He met the gentleman as he came out of Greenwood Hall and told him what he wanted. The man replied that it was too late, but grasped him by the throat in a very threatening way and said, "You can speak," and he could, and he went back to the service. Now, I suppose that could be explained by the fact that he had rested, and then he was very much frightened, and the whole chain of mental convictions that he could not speak was broken up and he could speak.

DR. JOHNSTONE.—It will not do to let such an interesting and instructive paper as Dr. Thrasher's go unnoticed. It comes in just the right way; it makes us realize that we have reflexes of some other organs besides those in our specialty, and it accentuates the fact that every specialty is an assistant to every other one and its consideration gives us a wider view.

I have had some experience with singers. I have had them sent to me by the laryngologists, and have found in several instances the voice has been restored by the removal of uterine lesions. A little catarrhal metritis or subinvolution, or some trifling thing like that, caused the trouble. It has been said, and I believe truly, that excessive venery is one of the greatest menaces to the tenor voice in this country.

DR. THRASHER.—I thank the gentlemen for the kindness of their acceptance of my few remarks. Reflex laryngeal trouble is not due to the direct influence of the disease in the uterus. The larynx must be diseased also. The disease of the larynx may recover and yet leave the larynx weak, so that it is susceptible to the transmitted irritability from the central ganglia.

The Cincinnati Obstetrical Society at its annual meeting elected the following officers for the ensuing year:

President—Dr. Arthur W. Johnstone.

Vice-President—Dr. Sigmar Stark.

Secretary—Dr. E. S. McKee.

Corresponding Secretary—Dr. W. D. Porter.

Treasurer—Dr. George E. Jones.

REVIEWS.

MEDICAL GYNECOLOGY. A Treatise on the Diseases of Women from the Standpoint of a Physician. By ALEXANDER J. C. SKENE, M.D., Professor of Gynecology in the Long Island College Hospital, Brooklyn, New York, etc., etc. Illustrated. Pp. 530. New York: D. Appleton & Co., 1895.

In this day, when every gynecologist must be a surgeon and every work on gynecology is almost purely surgical in its teachings, it is a pleasure to be able to read a work by one so well known, both as a surgeon and a teacher, as Dr. Skene, in which for once scalpel and curette are laid aside and comparatively neglected hygiene and therapeutics brought into prominence. The dividing line between the medical and the surgical, which in general may be said to pass between the functional and the organic, is here sharply drawn. The teaching is sound, the author holding himself well within his lines; the diction is pleasing. The work should be read, not to the exclusion of other and more surgical works, but as a complement to them and as a reminder that there are sometimes other methods than surgical and other organs to be considered than those of the pelvis.

Part I. deals with the primary differentiation of sex, development and growth during early life, and the conditions favorable to the evolution of a normal organization and the attainment of a healthful puberty. This involves the discussion of heredity and environment, including care in childhood, mental and physical education and culture, together with the necessary attentions during the transition from girlhood to womanhood—that is, it considers fully the ways and means of developing vigorous organizations and maintaining healthy functional life.

Part II. treats of the characteristics of sex, the adaptation of structure to function, the predisposition to particular diseases, and the cause of certain affections peculiar to women. Then follow the functional and organic diseases, common to the period of active functional life of woman, which naturally come under the care and observation of the physician.

Part III. discusses the menopause, or the transition from active functional life toward advancing years, and then the diseases of the later period.

THE EVOLUTION OF THE DISEASES OF WOMEN. By W. BALLS-HEADLEY, M.A., M.D. (Cantab.), F.R.C.P. London, Lecturer on Midwifery and the Diseases of Women at the University of Melbourne, Honorary Physician to the Woman's Hospital, etc., etc. Pp. 375, 114 illustrations. London: Smith, Elder & Co., 1894.

The author throughout this work—which might with advantage be condensed one-half—emphasizes and reiterates the part played in the causation of gynecic disease by the relations of the sexes under the artificial conditions imposed by civilization and the customs of society. The dominant idea of the work can be learned from a few sentences from the introductory chapters: "In women the sexual instinct—that is, the natural, unreasoning impulse by which she is guided to the propagation of the race—is usually more pronounced; in man, the sexual appetite—that is, the desire of gratification in the act of union. . . .

"In the present state of civilization a large number of women cannot marry." . . . "The selection of the fittest has resulted in a race of women of such extraordinary physical growth and beauty as has probably never before existed, but whose sexual growth is liable to be so affected by mental culture, mode of dress, and delayed or non-marriage that never before were uterine abnormalities of development, disease, and difficulty in parturition so prevalent." . . . "While the developing brain of man is probably increasing the size of the head in birth, the normal capability of parturition of women is decreasing."

The marrying age of women is getting well along toward 30. "What would we think of Nature's arrangements if every other female creature were desolate of a mate till half its sexual life were past? The cowardice and selfishness of the men of our time not to marry the girls and work for them!" . . . "It is the duty of man to marry." . . . "Marriageable men are numerous, but they are unwilling. A large proportion of women are thus deprived of the use of their strongest instinct and an unnatural state is induced." . . . "Every woman has a right to the exercise of her propagative powers in marriage." . . . "Man and woman fail in their health and completeness of perfection if these demands be not satisfied." . . . "In Nature every female creature has the use of her sexual organs."

While, no doubt, these factors, late marriage, celibacy, unhygienic habits, improper dress, are very important and do contribute in a very material way to the production of pelvic and general disease, it seems that our author rides his theory too fast and too far, and yet his book contains much that is interesting and much of sound advice. His style is at times clear, but in many

places so involved that the sentences must be studied before their meaning becomes at all intelligible. Thus on page 172 he says: "But endometritis is the usual cause of tubal disease, and in the virginal class it is frequently of an active character. Occurring generally in vigorous sexual development, and particularly with congenital excessive or deficient size of the mouth, in which marriage has not happened at the required time, unsatisfied desire has produced a chronically congested state of the endometrium, which has advanced to virginal endometritis. The tubes participate in the primary and subsequent septic inflammation, and are unrelieved by satisfied passion, or by the rest and vascular diversion induced by pregnancy. Some obstruction to escape is thus produced by the puffed and edematous mucous lining, particularly where the tube is walled around in the solid muscular tissue of the uterus, and accumulation and distention take place external to the uterus. The tubes are thus heavy, and, in the lying position to which resulting pain inclines, and which is assumed at night for more than a third of the twenty-four hours, and in the erect posture to a less degree, fall toward Douglas' pouch, and drag backward on the fundus, which they thus tend to render perpendicular, retrovert, or retroflex," etc.

Many of the illustrations are very good, the type is clear, the paper of good quality, the index fair.

HYGIENE AND PHYSICAL CULTURE FOR WOMEN. By ANNA M. GALBRAITH, M.D., Fellow of New York Academy of Medicine; Attending Physician, Neurological Department, New York Orthopedic Hospital and Dispensary; late Attending Physician and Instructor in Diagnosis and Clinical Medicine, Woman's Medical College, New York Infirmary, etc., etc. Illustrated. Pp. 294. New York: Dodd, Mead & Co., 1895.

HEALTH NOTES FOR YOUNG WIVES. By AIMÉE RAYMOND SCHROEDER, M.D. Illustrated. Pp. 210. New York: Wm. Wood & Co., 1895.

THE CARE OF THE BABY. A Manual for Mothers and Nurses, containing Practical Directions for the Management of Infancy and Childhood in Health and in Disease. By J. P. CROZER GRIFFITH, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Professor of Clinical Medicine in the Philadelphia Polyclinic and School for Graduates in Medicine; Physician to the Children's Hospital, to the Methodist Episcopal Hospital, and to St. Agnes' Hospital, Philadelphia; Member of the American Pediatrival Society and the Association of American Physicians. Illustrated. Pp. 392. Philadelphia: W. B. Saunders, 1895.

We have here three excellent books, written, not for the phy-

sician, but for the instruction of his best patients. Could their precepts be made common property and be intelligently lived up to, much of invalidism among women would be swept from existence.

In logical sequence we take up first Dr. Galbraith's work on hygiene for women. This is an effort, and an exceedingly well directed one, to combat the ignorance shown by the masses of otherwise well-educated women in regard to all the functions of the human body. It contains sound doctrine well and simply expressed. After an introduction the bony and muscular systems are described, and it is shown how they may be abused or brought to the greatest possible perfection. The key to physical beauty is given; various forms of exercise and their benefits are described, together with the necessity for a balance between food supply, digestion, and excretion. Dress, work, rest, and sleep are all given due consideration. At the end the author quaintly appends the words of St. John: "If you know these things, happy are ye if ye do them." To which we devoutly say, Amen.

The young woman who has lived as Dr. Galbraith would have her becomes physically and mentally so attractive that she is very certain to become a wife; then she should read the "Health Notes for Young Wives" of Dr. Schroeder. Here a delicate subject is well handled. Enough but not too much is said of the hygiene of pregnancy, of its disorders, and of miscarriage. Preparations for confinement are described, directions given for the conduct of labor in emergencies, for the after-care of the mother and the care of the infant, etc. The author makes it plain that a good physician should be the chief source of information, while at the same time she gives the many little points about which most women are entirely ignorant and a knowledge of which saves much discomfort or actual suffering.

When the young wife becomes a mother her thoughts naturally turn anxiously to the Care of the Baby, and of this Dr. Griffiths tells her. The first chapter of the book discusses the hygiene of pregnancy, the method of calculating the date of confinement, and similar data. The characteristics of a healthy baby are considered in the second chapter, and the growth of its mind and body in the succeeding one. The chapters which follow relate to the methods of bathing, feeding, and dressing children of different ages; to the hours for sleeping; to physical and mental exercise and training; and to the proper qualities of the children's nurses and rooms. Details are made clear, complete, and up-to-date. The whole book is characterized by rare good sense and is evidently written by a master-hand. It can be read with benefit not only by mothers, but by medical students and by any practitioners who have not had large opportunities for observing children.

ABSTRACTS.

1. CHOLMOGOROFF: SUTURE OF THE RUPTURED UTERUS PER VAGINAM (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxi., Heft 1).—Cholmogoroff succeeded in suturing a bad laceration of the uterus by the vagina. The case was a breech presentation in a woman who gave the history of four difficult confinements. The pelvis was contracted. The woman was bleeding quite profusely. The body of the child was extracted and the after-coming head perforated through the hard palate. The placenta could not be expelled by Credé's method, and the introduced hand discovered a uterine rupture, about ten centimetres in length, situated three centimetres above the os externum. The placenta was found in the midst of coils of intestines and removed. The author feared to perform laparotomy, as the case had not been managed aseptically before coming under his observation, and he concluded to attempt to unite the wound by the introduction of sutures per vaginam. The peritoneal cavity was irrigated with a warm two-per-cent solution of boric acid, the cervix steadied with volsella forceps, and the uterus drawn down into view. The lacerated edges were trimmed and united with interrupted sutures, including the peritoneum, but a corner of the wound was left open. Through this opening a long strip of iodoform gauze was introduced into the peritoneal cavity; after this all bleeding ceased. The uterine cavity and the vagina were also packed with iodoform gauze. The uterine tampon was removed on the fourth day, but the strip placed in the abdomen was left *in situ* until the eighth day. Recovery was uninterrupted except for a mammary abscess. The uterine wound united by first intention. Uterine ruptures can be sutured per vaginam if the tear is below the contraction ring, which position is, however, the most frequent. J. R.

2. KROENIG, B.: *Deutsche Med. Wochenschrift*, 1894, No. 43.—The author's investigations lead him to the conclusion that the vaginal secretions during normal pregnancy are free from pathogenic germs and possess marked germicidal properties. Syringing the vagina with antiseptic solutions reduces or destroys this germicidal power, pure water slightly lessens it. He cannot verify the statements of Döderlein that certain signs mark a vaginal secretion, "a pathological secretion."

Kroenig concludes that prophylactic vaginal douches are not only useless but absolutely harmful, and should not be administered, even in cases in which gonorrheal infection is present. J. R.

ITEMS.

THE second session of the INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS will take place at Geneva during the first fifteen days of September, 1896. The subjects for discussion, for which there have been chosen speakers from the different countries, are as follows:

Obstetrics—Relative frequency and most often observed forms of pelvic contractions in different countries. Treatment of eclampsia..

Gynecology—Operative treatment of uterine retrodeviations. Pelvic suppurations and their treatment. Methods of suturing the abdominal walls; best means of avoiding; abscesses, evolutions, hernias, etc.

During the time of the congress there will be held an exposition of apparatus and instruments pertaining to obstetrics and gynecology.

VULLIET,

For the Committee of Organization.

MEMBERS of the medical profession desirous of taking part in the work of the GYNECOLOGICAL, OBSTETRICAL, AND PEDIATRICAL CONGRESS to be held in Bordeaux, August 8th, are requested to send notice of such intention as soon as possible to the secretary, Dr. R. Lefour, rue Duffour-Dubergier 11, Bordeaux.

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ORIGINAL COMMUNICATIONS.

SOME FURTHER CONSIDERATIONS OF THE INTRAPELVIC BUT EXTRAPERITONEAL TREATMENT OF THE STUMP IN SUPRAVAGINAL HYSTERECTOMY FOR FIBROID TUMORS.¹

REPORT OF FIFTEEN CASES WITH ONE DEATH.

BY

J. RIDDLE GOFFE, M.D.,

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Gynecologist to the Skin and Cancer Hospital, etc., etc.

THE etiology of fibroid tumors of the uterus is as much of an enigma as ever. New theories are being advanced from time to time, but they have failed to throw any permanent or satisfactory light upon the subject. Undoubtedly the real cause is some localized interference with nutrition, either at one centre or at many ; but the cause of this interference escapes our ken. The more recent suggestions ascribe the origin to bacteria, and a still later one to the presence of inflammation in the Fallopian tubes. It is true that micro-organisms are quite constantly present in fibroid tumors, but the crucial test of isolating them and producing fibroid

¹ Read before the New York Obstetrical Society, May 7th, 1895.

tumors artificially by inoculation remains to be accomplished. Regarding the placing of the responsibility of the etiology of fibroid tumors on the inflammation in the Fallopian tubes, it would seem to most men of experience like reversing cause and effect.

But, little as we know regarding the origin of these neoplasms their nature and their history, their unfortunate consequences impress themselves upon us daily. Their innocuousness outside of their mechanical presence is no longer held by any one except the most conservative and those who are unfamiliar with operative procedure. To enumerate the pathological complications briefly, I would say that they are danger of suppuration, breaking down and consequent blood poisoning, and fatty degeneration; but this latter is rather a favorable factor in the case and has been observed during post-puerperal involution, causing sudden and complete disappearance of the neoplasm. Carcinomatous and sarcomatous degeneration have been attributed to fibroid tumors, but this is still a disputed point. Cystic degeneration is not an uncommon complication, the explanation of which is somewhat interesting. The most common form probably consists in an extraordinary development of the lymphatics of the neoplasm, presenting here and there a series of sinuses, or at times a single large cavity filled with a clear, transparent fluid. This cystic transformation, however, may be due to an obstruction to the circulation in the deep tissues of the neoplasm, causing a stasis and edema by which nutrition is interfered with, disintegration and liquefaction eventually occurring. A serious complication, and one of the most common, is single or double pyosalpinx. This complication is one of the most frequent causes of symptoms in small tumors; it keeps the life of the patient in constant jeopardy and is a serious feature to deal with in their final removal. Nothing more serious, however, as a rule, can attend the presence of a fibroid tumor than the unfortunate occurrence of pregnancy. It is a well-known fact that the presence of myomata is a common cause of sterility, and, in the event of conception occurring, the cause of early abortion. When the tumor is situated in the lower segment of the uterus and the pregnancy advances to full term, the results are alarmingly fatal. It would be natural to expect myomata, as a rule, to grow very rapidly during pregnancy, but authorities differ on this point. Emmet says that they cease to grow during preg-

nancy. Cazeaux says: "I have seen them in several instances to acquire a size in three or four months which they would not have done for several years in the non-pregnant condition."

The results of non-interference in cases of pregnancy complicated by myomata show a fatal record. Lefour reports three hundred and seven cases, in which thirty-nine abortions and thirteen maternal deaths occurred; Nauss, two hundred and forty-one cases with forty-seven abortions; Sussierot, in one hundred and forty-seven, records eight deaths after application of the forceps, twelve after version, and thirteen after artificial removal of the placenta. Sutugin states that scarcely one-fifth of the cases complicated by myomata terminate without surgical assistance, and that about one-third of the mothers and one-half of the children die during or soon after labor.

Operations for the removal of ovarian cysts during pregnancy are not attended with much danger, and while the field of operations upon fibroid tumors complicated by pregnancy has not been exploited very extensively, in the near future surgical interference will doubtless not be uncommon.

So much has been written in the last few years regarding the methods of operating in cases of fibroid tumors that it is not necessary to go into this subject at this time. Suffice it to say that the profession is rapidly approaching the uniform opinion that the sooner a fibroid tumor is removed, when once discovered, the better it is for the patient. Extirpation of the uterus is not necessary when the tumor is small. Many of these tumors can be removed *per vias naturales* when they are situated beneath the mucous membrane. Others can be enucleated after celiotomy and the uterus left to perform its functions of menstruation and pregnancy; but when the tumor is large the safest and most satisfactory method is hysterectomy, and the two methods that seem to divide the honors of the day are total extirpation and supravaginal amputation by the method that I have had the honor to suggest and advocate. The method of morcellation *per vaginam* seems to be growing in favor in the experience of some operators, but it is not my purpose to introduce that method into the discussion to-night.

The method that I employ most commonly is that described in the title of this paper. My first operation was done on May 28th, 1888. Since that time it has undergone many changes in its details, although the essential principle which entitled it to

the claim of a new and original operation—viz., the making of peritoneal flaps with which to exclude all ligatures and raw surfaces from the peritoneal cavity—remains the same. The technique as I employ it to-day is as follows: After opening the abdominal cavity, and while the tumor is still *in situ*, the ovary and tube upon one side are drawn up and a ligature is passed through the upper border of the broad ligament outside the adnexa and tied, thus controlling the ovarian artery; one end of this is rethreaded into the pedicle needle, and the broad ligament is transfixed a second time near to the tumor and just above the uterine artery. This is also tied. A temporary ligature is now placed near the horn of the uterus to control any reflex hemorrhage from the tumor. The broad ligament is cut down to the lower point of transfixion, and the tumor is then rotated and the same method performed on the other side. The tumor is then delivered through the wound, and the lower angles of the incisions through the broad ligaments on either side are connected by an oval incision through the peritoneum, first across the anterior and then across the posterior surface of the tumor. The flaps are then dissected down, the one in front carrying the bladder and ureters into safety. One end of the ligature is again threaded into the pedicle needle and is passed inside these peritoneal flaps close to the cervix and below the uterine artery. This is repeated on the opposite side and the ligatures cut short. The tumor is then cut away on a level with the internal os. The cervical canal is disinfected with applications of carbolic acid. The flaps are then stitched together with a running catgut suture over the top of the stump, care being taken to make them cover all the ligatures on either side. I use silk ligatures on the broad ligaments and catgut for stitching the flaps. The advantage of using a single ligature for each broad ligament is that it puckers up the end of the ligament and carries it down alongside of the cervix, so that the raw surface is very easily covered by the peritoneal flaps. In a general way the advantages of this operation and the superiority over the method of total extirpation consist in the following points:

1. It involves the least possible loss of blood; indeed, it is rare for any hemorrhage to occur.
2. It is easy of execution, for the reason that the stump of the cervix can be brought up near to the abdominal wound and the details of disposing of the traumatic tissue carried on with ease and comfort to the surgeon.

3. It is applicable to every case of fibroid tumor—at least I have never found a case in which it could not be applied.

4. It requires less time than total extirpation.

5. Convalescence, as a rule, is rapid and free from complication. Moreover, the patients require no special after-treatment whatever. It is not necessary to put gauze in the cervix or in the vagina, consequently there are no dressings to be attended to. The after-treatment consists in regulating the functions of nature and removing the stitches from the abdomen. The open-bowel treatment is employed, and as a rule the patient urinates without assistance.

I have to report to-night fifteen cases operated upon by this method, with one death. That it may be seen how frequently the operations were attended with serious complications, I will comment upon them as they occur in the table.

Cases 1, 2, and 3 were multiple fibroids firmly wedged in the pelvis, causing serious pressure and attended by firm adhesions.

Case 5 was a multiple fibroid with a large projection extending out into the broad ligament on the left side, necessitating its enucleation before the ligature could be applied to the uterine artery.

Case 7 was a multiple fibroid complicated by abscess of the ovary with extensive adhesions.

Case 8 was also a multiple fibroid complicated by a multiple colloid ovarian cyst reaching as high as the diaphragm.

Case 11 was one in which I had operated for a cystic ovary and removed the appendages upon the right side four years previously. At that time there was no evidence of any fibroid or enlargement of the uterus. At the time of operation it was the size of a large cocoanut.

Case 12 was one of those bloody tumors, full of venous spaces or diverticula, which, when the tumor was cut away at the cervix, poured out such a gush of blood that I thought the deluge had come. The tumor was interstitial, being entirely surrounded by the muscular fibres of the uterus. These contracted so firmly that I could feel the mass diminish very perceptibly in size as I cut it away at the cervix. The general appearance of the abdomen was that of a large ovarian cyst, the contour being quite symmetrical and prominent. The main tumor reached above the umbilicus, and growing from its summit was a large cyst which reached up to the liver. A remark-

TABLE.

Number of case.	Name.	Age.	Race.	M.—S.—W.	Children.	Place of operation.	Date.	Result.	Remarks.
1	Ann McE.	40	White.	W., married 15 yrs.	0	St. E. H.	May 29, 1888.	Recovery.	Multiple, wedged in pelvis.
2	Mary D.	41	White.	W.	3	158 E. 38th street.	May 2, 1889.	Recovery.	Multiple, wedged in pelvis.
3	Delia H.	29	White.	S.	0	St. E. H.	May 27, 1889.	Recovery.	Multiple, wedged in pelvis
4	Mrs. A.	35	White	M. 16 yrs.	0	158 E. 38th street.	Oct. 27, 1889.	Recovery.	Large myoma.
5	Mrs. J.	34	White.	M. 20 yrs.	0	St. E. H.	....	Recovery.	Multiple, splitting broad ligament.
6	Anna D.	41	White.	S.	0	22 E. 35th street.	June, 1891.	Died.	Simple case. Uncomplicated tumor, the size of a coconut.
7	Mrs. S.	31	Colored.	M. 10 yrs.	5	S. and C. January H.	January 1893	Recovery.	Multiple fibroid complicated with abscess of the ovary. Adhesions extensive.
8	Mrs. R.	32	Colored	M.	0	S. and C. January H.	January 1893	Recovery.	Multiple fibroid complicated by multiple colloid ovarian cyst reaching to the diaphragm.
9	Mrs. S.	34	White.	M.	0	22 E. 35th street.	May, 1893.	Recovery.	Large, multiple, no complications.
10	Annie M.	45	White.	S.	0	St. E. H.	May, 1894.	Recovery.	Large, multiple, and small ovarian cysts.
11	B. S.	36	White.	M. 10 yrs.	0	22 E. 35th street.	Sept., 1894.	Recovery	Simple fibroid. Enlarged glands in the broad ligament, which were removed.
12	Miss N.	49	White.	S.	0	Polyclinic.	Nov., 1894.	Recovery.	Immense multiple tumor, with large cyst growing from its summit, pronounced in the last stages of cancer.
13	K. LaB.	..	White.	W.	4 miscarriages	22 E. 35th street.	Dec., 1894.	Recovery.	Large, multiple; large pus tube.
14	K.	..	White.	M. 6 yrs.	0	22 E. 35th street.	March, 1895.	Recovery.	Multiple fibroid; large cystic ovaries.
15	S. Q.	36	Colored.	M. 10 yrs.	0	Polyclinic.	April, 1895.	Recovery.	Simple tumor uncomplicated.

able feature of this tumor was that it had rotated on its axis from left to right over half of an entire circle, 180° , so that while the tumor grew in the posterior wall of the uterus its posterior surface was presenting to the front. This twist in the tissue was at the expense of the vagina and left broad ligament, the body of the uterus and the bladder being carried around to the right and posteriorly. The left broad ligament was stretched across the tumors in front; both of the ovaries and the tubes were on the left side. This confusing state of affairs was readily solved when the tumor was twisted for a half-turn, when everything took its proper relation. Of course the cyst was tapped and the fluid drawn off through a trocar before any attempt was made to deliver the tumor. Another interesting feature of the case was the fact that the ascending colon was caught between the solid tumor and the cyst, the connecting tissue straddling it like a yoke; the result of the obstruction thus occasioned was the distention of the caput coli to the diameter of fully six inches, and the appendix, which was adherent to this extremity, was stretched out to a similar length. The appendages in this case were perfectly healthy.

Case 13 was an unique specimen in several respects. It was a multiple fibroid of enormous size, and each tumor was unusually distinct and enclosed in a separate capsule. It clearly represented each class of tumor by locality, viz., submucous, subserous, and interstitial or mural, including a fibroid polypus, as big as one's two thumbs, projecting into the cavity of the uterus, a large number of mural fibroid centres, and three large subperitoneal masses, one of which had split the right broad ligament. Moreover, two of the degenerative changes of fibroids were present, viz., one was undergoing cystic degeneration and two showed calcareous degeneration. It was a very unique specimen. There was a large pyosalpinx on the left side, firmly adherent to the sigmoid flexure.

Of these fifteen cases all but one of the patients were between the ages of 30 and 50. Ten had been married for from six to twenty years, but only three had ever been pregnant. Twelve were white and three colored. The fatal case, No. 6, was in a desperate condition before the operation and succumbed to shock on the second day; her death can in no way be attributed to the method used.

My usual method is to entirely close the abdominal wound

with a single row of silver sutures, but in three of these cases, two of whom were presented before this Society, I used buried sutures of silver wire in the fascia. In two cases, 7 and 8, they worked most satisfactorily, the patients leaving the hospital on the fourteenth day and never wearing an abdominal supporter. In these cases I fastened the sutures by a simple twist. In the third case I shotted the five buried silver-wire sutures; two of these suppurated and had to be removed. The result was that a hernia followed, upon which I operated yesterday. The remaining three sutures were found nicely encysted and free from irritation. Whether the lead was responsible for the suppuration or not I am unable to say.

Of the modifications which have been made in the operation as originally described in my paper published in April, 1890, some have been made by myself and some by others. The chief improvement, nowever, has been in the position of the ligature controlling the uterine artery. In my earlier cases this ligature transfixed the cervix. It was a simple modification to stop short of the cervical tissue and embrace in this ligature only the uterine artery. But it is a modification that eliminates all suppuration from the after-history of the case. While I had done this in two of my four original cases to meet an emergency, it has been systematically employed, as I have previously pointed out, by Dr. Heywood Smith, of London; Dr. Reeves, of London; Dr. Milton, of Cairo, Egypt; and, finally, by Dr. Baer, of Philadelphia.

Through Dr. Baer's good fortune in having a large number of cases fall into his hands promptly after he had adopted this modification, he has claimed the whole procedure as his operation, and it is so accredited in various parts of the country. The injustice of this claim, however, I think is clearly understood by the members of this Society.

22 EAST 35TH STREET.

VAGINAL DRAINAGE IN ABDOMINAL SECTION.¹

BY

GEORGE H. MALLET, M.D.,

Assistant Gynecologist of the New York Cancer Hospital.

No question pertaining to abdominal surgery has been discussed more fully than that of drainage, and upon no question

¹ Reported to the New York Obstetrical Society April 16th, 1895.

have opinions differed more widely. Most of the German operators close the abdomen without any drainage and have had excellent results, while the greater number of English and American surgeons have drained and have done brilliant work with an exceedingly low rate of mortality. It has been thought that the entire closure of abdominal wounds in Germany has been made safe by the use of a large incision, the complete tying of all adhesions, removal of all extraneous matter without irrigation, by the perfect preparation and complete operating room, combined with the particular skill of the operator and his assistants—as comparatively few do abdominal work there—and more robust and hardy patients than those encountered by American or English surgeons. They have trusted to their ability in preventing the entrance of infection, and to the peritoneum to remove the exudation.

The English and American surgeons have been sceptical as to the possibility of keeping out all germs, and have turned their attention to the removal of the pabulum of the germs, and trusted to the vitality of the living tissues to resist the microbes when the cavity, free from dead and foreign matter, is kept dry and the vitality of the patient is maintained. They have favored these ends by a short incision and by removing blood, pus, contents of cysts, etc., by irrigation, instead of using sponges or gauze—disregarding the oozing from adhesions so long as the latter would be removed by the drainage tube. The time of operation is shortened.

When one considers the good results obtained both with and without drainage, it would seem a matter of indifference which system was followed. But this is not so. While it is true that at present there is a marked tendency in all operators to limit drainage, we believe that if it is used in proper cases and by proper methods the results of abdominal section will be better than they are to-day; and we doubt if there is an operator who has not seen patients live who would have died had they not been drained, and others that would have been saved had drainage been instituted.

To quote from Dr. J. Greig Smith: "The wounded or irritated peritoneum secretes fluid in amount varying according to the extent of the traumatism. Sero-sanguineous oozing from raw surfaces adds to the exudation. The peritoneum in healthy regions has great power of absorption, and in most cases the

fluids are absorbed as rapidly as they are secreted. Sometimes secretion is too rapid for absorption, and then we have a collection of fluid which gravitates into Douglas' pouch. This fluid is peculiarly liable to undergo decomposition, usually, no doubt, from septic influences introduced from outside, but occasionally by contamination through the coats of the large bowel. The accumulation of fluid is to be guarded against, and if we have any apprehension that the amount will be considerable we ought to drain, and when in doubt always drain."

Formerly the indications for drainage were: 1. To provide a means of escape for serous oozing following separation of adherent surfaces. 2. To guard against septic peritonitis from retained pus. 3. To remove fluids in cases of capillary hemorrhage. 4. To provide against secondary hemorrhage. 5. To drain the peritoneal cavity in cases of tubercular peritonitis.

Now the tendency of most operators is to limit drainage to bad pus cases, and the mortality following these operations has been lowered in recent years. This improvement may be due to the fact that operators are taking more care in the details of operation, as in avoiding oozing from torn adhesions and the rough handling of tissues. This end has been greatly facilitated by the use of the Trendelenburg posture.

If we decide that a given case should be drained, how can it best be accomplished? Drainage was formerly established by inserting a glass tube through the lower angle of the abdominal wound to the bottom of Douglas' sac. The fluid was removed from the tube by means of suction. Later the tube was packed with gauze, and more recently the gauze alone has been used to cover raw surfaces and sources of infection, and pack in a column to the abdominal opening.

The objections to abdominal drainage are numerous. They have been very ably summed up by Dr. Hunter Robb, who has found from bacteriological examinations made in many cases that under the most favorable conditions it is almost impossible to prevent the access of pyogenic micro-organisms into a drainage tube. The white staphylococcus in the skin is a constant menace where the way to the wound is kept open. Drainage through the abdominal wound, however accomplished, keeps asunder tissues that might otherwise immediately unite, thus predisposing to the formation of ventral herniæ and fistulæ. By pressure it has been known to cause fecal fistulæ. Cases of

intestinal obstruction following celiotomy have undoubtedly been caused by abdominal drainage.

The method of drainage that we advocate is by means of gauze through the vagina, for the following reasons: As the cul-de sac is the most dependent part of the abdominal cavity, it has the advantage of natural drainage by gravitation. With the abdomen closed and the vagina cleansed as it should be before every abdominal operation, there is no danger of sepsis. The possibility of fistulæ and herniæ is reduced to a minimum. The actual statistics of the cases drained by this method are better than those where the abdominal wound is left open. There is less pain and reaction after the operation. Dr. Coe, in his book recently published, calls attention to the value of this method when one is compelled to leave a patient, after operation, in the hands of a general practitioner. The attendant has merely to withdraw the gauze with no danger of infection.

The technique of this procedure is simplicity itself. The operator or an assistant passes two fingers into the thoroughly cleansed vagina. The sharp point of a pair of long scissors is then made to puncture the cul-de-sac between the guiding fingers, and by separating the handles of the scissors the opening may be enlarged as much as is desired. A pair of forceps is then passed through the vagina into the cul-de-sac, and the end of a narrow strip of gauze is caught and brought out through the vagina; the pelvis is then packed with the gauze to the extent that is deemed advisable. The intestines and omentum are allowed to regain their natural relations and the incision is closed. The gauze in the vagina can be easily withdrawn a few inches on the second day. The vagina can be irrigated with an aseptic fluid as often as may seem necessary, or a packing of iodoform gauze may be inserted. The gauze may be gradually removed, depending upon the amount of drainage required.

This method was used by Dr. Peaslee with success as early as 1855. Martin, Fenger, and Pozzi advocate drainage by the vagina. In this country it has supporters among the most eminent abdominal surgeons.

In a recent examination of three patients upon whom I had operated and drained in this manner I was surprised to find that the uterus in each case had remained up in position and had not sagged at all, as is usual after the removal of the appendages:

The probable explanation of this is that the gauze packing raised the uterus to the abdominal incision, adhesion took place, and a ventral fixation was the result. Whether this happy result follows all cases drained in this way I am unable to say, but it will furnish an interesting subject for further investigation.

In conclusion, the points that I wish to emphasize are: That the tendency of all operators seems to be toward the limitation of drainage to bad pus cases. The wonderful results of vaginal hysterectomy for pelvic suppuration have shown the value of drainage by the vaginal route, and have gone far to convince men that the patient has a better chance for recovery if the pelvic cavity is completely shut off from the air and all fluid is allowed to escape. By this method the organs are not disturbed nor unduly pressed upon. The intestines are not interfered with and the parts are left in the normal condition. When necessary to leave a case to the general practitioner, he has simply to pull out a little gauze from the vagina every day, and he cannot introduce sepsis.

222 WEST 59TH STREET.

VAGINAL HYSTERECTOMY FOR UTERINE MYOMATA AND DISEASES OF THE ADNEXA.¹

BY

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Louisville, Ky.

(With nine illustrations.)

To Péan is mainly due the credit of demonstrating the indications for and the success of vaginal hysterectomy in the treatment of tumors of the uterus and the uterine adnexa, and other diseased conditions in the pelvic cavity; and as his experience is greater than the experience of any one else, the following extract from a letter received from him may be of interest:

¹ Read before the American Gynecological Society at the meeting in Baltimore, May 28th, 1895.

"Since 1882 I have shown, as you will see, that the vaginal method is preferable to the abdominal for all small tumors of the uterus and adnexa; that vaginal hysterectomy is preferable in operating for cystic or solid tumors of the uterus and its adnexa, the size of which does not exceed the fetal head and does not extend above the umbilicus; that by this new method we may remove without danger (two to four per cent) the uterus for fibroma, sarcoma, cysts, or cancer, with the greatest facility, if one employs my method of using preventive clamping forceps and morcellation of the tumors and diseased organs. By this new method an experienced surgeon may avoid lesions of the adjacent organs, even if there are grave complications, general adhesions, pelvic suppuration, etc."

From a more recent letter from Péan, Paris, May 3d, 1895, giving the statistics of his vaginal hysterectomies and the conditions for which the operations were performed, I quote the following: "The operations were performed approximately in 10 per cent of cases for myomata, in 20 per cent of cases for simple inflammation of the uterine adnexa, in 30 per cent of cases for simple pelvic suppuration, in 40 per cent of cases for complicated pelvic suppuration and intraligamentous cysts and myomata. The mortality in all these operations is about 3 per cent."

The following is an extract from a letter from Richelot, Paris, May 7th, 1895:

"In my book¹ were reported 230 observations concerning facts that interest you. Of this number there are 43 uterine myomata with one death; 61 pelvic suppurations with five deaths; 126 non-suppurative diseases (hematosalpinx, parenchymatous salpingo-ovaritis, hydrosalpinx, etc.) with five deaths, which gives a mortality of 4.78 per cent.

"Since the end of the year 1893, at which time the statistics in my book cease, I have made in the space of one and a half years 154 operations for diseases not cancerous. Here are the results: 22 uterine myomata with one death, 78 non-suppurative diseases with one death, 54 pelvic suppurations with three deaths, which gives a mortality of 3.68 per cent.

"In uniting the two series I find 384 cases with 16 deaths, which gives a general mortality of 4.16 per cent.

¹ "L'Hystérectomie vaginale contre le Cancer de l'Utérus et les Affections non-cancéreuses," Paris, O. Doin, éditeur.

"It is to be remarked that the results of the second series are superior to those of the first, though the proportion of pelvic suppurations is much greater.

"It is also to be remarked that the six deaths of the second series occurred in the first five months, and that I have had since the month of June, 1894, nearly a year ago, an uninterrupted series of 112 recoveries, of which I count 36 suppurations nearly all complex, and 19 fibroids nearly all large and extracted by laborious morcellation.

"These results confirm the opinion that I have already expressed in my book on vaginal hysterectomy. I prefer this operation to laparotomy in :

"1. Uterine myomata when the tumor can be taken away per vaginam by morcellation ; that is to say, for all tumors that do not ascend above the umbilicus and are of sufficient consistence to give firm hold to the instruments per vaginam.

"2. Diseases of the adnexa when the lesion is certainly bilateral ; when the age of the woman permits the surgeon to think exclusively of the assurance of the operative result and the perfection of the therapeutic result. I reserve laparotomy for cases where a woman is young, if the bilateral lesions are not shown."

The following are the conclusions in a letter from Pozzi, Paris, May 11th, 1895, based upon his experience in vaginal hysterectomy for the last five years :

"I only prefer vaginal hysterectomy for pelvic inflammations when laparotomy would be too dangerous or insufficient to insure a complete recovery. So I perform vaginal hysterectomy every time I find bilateral lesions of the appendages with firm adhesions to the uterus. I also perform vaginal hysterectomy when I meet with double pyosalpinx adherent to the fixed uterus or with perinterine inflammation. As for my myomata, some of them were very large and extended up to the umbilicus, and in some cases there were perinterine inflammation and adhesions.

"My rule is to perform vaginal hysterectomy in myomata when they do not go beyond the umbilicus."

Probably no one has had better opportunities than Jacobs to compare the results by vaginal hysterectomy and celiotomy in the treatment of pelvic suppuration and bilateral diseases of the uterine adnexa. In a paper published in the May number of the *AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN*, he gives the following indications for vaginal hysterectomy :

"Hysterectomy and ablation of the adnexa by the vagina is indicated in cases of cancer of the uterus, uterine tumors, diseased conditions of the uterine appendages, periuterine suppurations, suppuration about the appendages, and for periuterine tumors."

To these indications I would add some cases of extrauterine pregnancy, post-*puerperal* septicemia where the infection is confined to the uterus or pelvic structures, and small ovarian tumors. Jacobs' mortality in four hundred and three vaginal hysterectomies for the above-named conditions is 2.9 per cent.

It will not be contended that vaginal hysterectomy should be an operation of election in all cases of pus pockets in the broad ligaments, tubes, ovaries, or cavities formed by adhesions (encysted peritonitis), for there may be complications involving structures so high above the pelvis that they cannot be reached per vaginam, and without the removal of which the patient cannot be cured—namely, extensive omental or intestinal adhesions and appendicitis. These complications, however, are so infrequent that practically all cases are operable per vaginam.

As hysterectomy should not, with few exceptions, be performed if the ovary and tube upon one side are healthy, it may be urged that where we cannot positively diagnosticate bilateral diseases of the adnexa the diseased structures should not be approached through the vagina.

This objection is not valid, because an opening into Douglas' pouch is practically devoid of danger, and the diseased side may be removed through such opening without disturbing the uterus, and if it cannot a celiotomy may be immediately performed, and if necessary the vaginal opening left to give more perfect drainage. In cases of celiotomy where a pus sac cannot be enucleated without rupture a previous opening into the vagina would lessen the mortality, because the pus by gravitation would go in that direction, and by irrigation from above might be immediately forced into and out of the vagina without soiling the peritoneum or necessitating the use of abdominal drainage by the glass tube or gauze.

The dangers of immediate and secondary hemorrhage, wounding the bladder, ureters, or intestines, and the difficulty of maintaining asepsis are arguments used against vaginal hysterectomy; but these objections are not well founded, and the experience of

Péan, Richelot, Ségon, Jacobs, etc., has proved that these dangers are less than in celiotomy.

Where it is the correct thing to attempt to separate the adhesions of the intestines or omentum, this may be done about as well through the vagina as through the abdomen; but where adhesions are firm and extensive, shutting off pus cavities from the abdomen, it is often the wise thing to disturb the intestines as little as possible, for they are so arranged that they may cause no subsequent trouble, allowing the gas and feces to pass uninterruptedly. But if celiotomy is performed these adhesions must be separated, the peritoneal cavity thereby soiled, probably causing local if not general sepsis, and if the intestines have escaped serious injury they are left in a condition that predisposes to secondary irregular adhesions more dangerous than the primary adhesions. All experienced celiotomists know that in secondary operations in such cases the adhesions are often almost universal and may cause death from obstruction. While the dangers of wounding the rectum, bladder, or ureters in vaginal hysterectomy are not greater than in celiotomy, if these structures are injured the mortality in the former is not twenty-five per cent of the mortality in the latter, because the perfect drainage prevents peritoneal infection. The bladder or rectum may often be immediately sutured, and if the ureter is injured and cannot be repaired it may be subsequently implanted into the bladder.

If the wounds of the rectum and bladder cannot be repaired the openings generally close within a few weeks. The indications for vaginal hysterectomy, and the superiority of this method over the abdominal method in the treatment of cancer, of small myomata confined to the uterus or extending into the broad ligaments, or in small bilateral intraligamentous cysts, are so manifest and have been demonstrated so positively by the work of Péan and his followers that a further discussion would be a waste of time.

Nor is it necessary to argue with celiotomists who contend that the removal of the uterus after the tubes and ovaries have become badly diseased and are functionless is a useless mutilation of women.

When the tubes and ovaries are removed the uterus can serve no useful purpose, and may remain, or finally become an offending member of the body. In many cases where the tubes and

ovaries are removed the woman is not cured and may not be benefited, but when finally the uterus is removed all symptoms disappear.

As tubal or pelvic suppuration is frequently caused by continuation of an infection in the endometrium, the uterus may remain a diseased organ that cannot be cured by curetting or other intrauterine treatment.

In other cases where the uterus shows no positive signs of disease the removal of the adnexa does not relieve pain, because the nerves of the uterus or the surrounding ganglia are diseased. If the uterus is not removed, even if not diseased, it may become reinfected by fresh exposure, or become displaced and adherent to adjacent structures, or carcinoma may develop. As about twenty per cent of all cases of salpingitis are tubercular, with probable tubercular involvement of the uterus, the latter organ in such cases should be removed with the tubes and ovaries.

Pus tubes may have formed such extensive and firm adhesions that their removal entails such injury to the uterus that a mutilated organ is left. In most of Péan's cases where the uterus was removed and the appendages drained and left the patients remained permanently cured. Péan was at first alone in his advocacy of vaginal hysterectomy for the above-named conditions, but finally his own countrymen who had fought him so vigorously became the most earnest advocates of the new method.

The following are some of the reasons why vaginal hysterectomy should be preferred to celiotomy :

1. There is less shock and more rapid and complete convalescence, the patients usually sitting up within a week and walking a few days later.
2. In pelvic suppuration there is less danger of septic infection from soiling the peritoneum.
3. Absence of suture or mural abscesses, and of sinuses following the use of drainage or an infected ligature.
4. Fewer adhesions following operation.
5. Immunity from ventral hernia.
6. A lower mortality, fewer post-operative complications, and a more complete restoration to health in a relatively greater number of cases.

The above are facts, as shown by statistics of the most successful operators in celiotomy and vaginal hysterectomy; and in

vaginal hysterectomy many of the cases were inoperable by any other method.

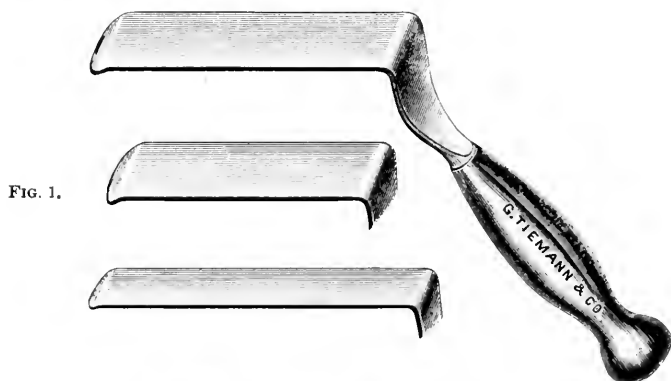


FIG. 1.

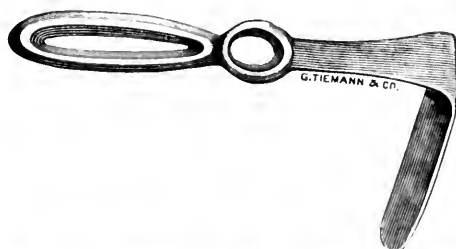


FIG. 2.



FIG. 3.

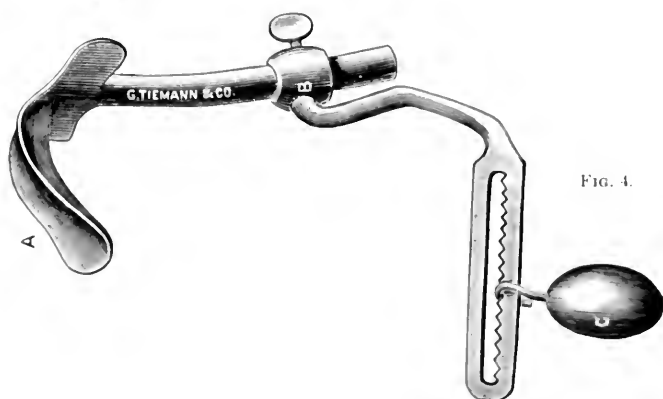


FIG. 4.

FIGS. 1, 2, 3, 4 — Retractors.

It will thus be seen that theoretical objections to vaginal

hysterectomy, unsupported by facts and reasons, are worthless when tested by intelligent experience.

The preliminary preparations for vaginal hysterectomy and celiotomy are practically identical, but in the former the vagina should be made as aseptic as the abdomen is in the latter, and if there is infection of the endometrium, causing leucorrhœa, the uterus should be curetted and irrigated with a 1 : 2000 bichloride

FIG. 5

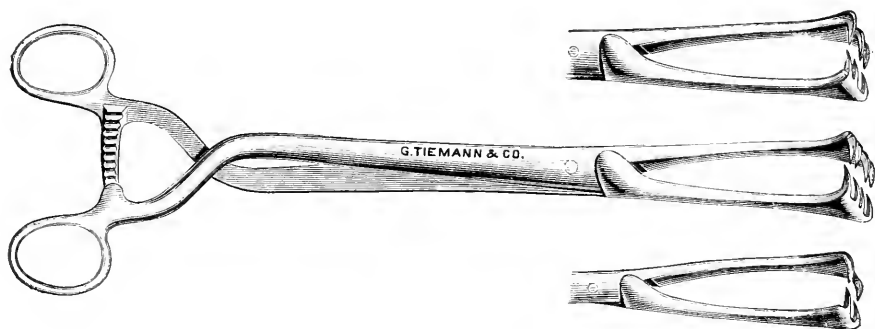


FIG. 6.

Figs. 5, 6.—Volsella forceps.

solution, and if not immediately removed should be tamponed with iodoform gauze.

The cervix uteri and vaginal vault may be exposed by any form of vaginal retractors, but Péan's are probably the best, for they are more easily managed by the assistants and thereby expose and protect structures better. While it may be necessary to use four retractors in some cases of morcellation of myomata, it is not necessary to use more than two—posterior and anterior—in operating for other conditions, and the anterior one may often be dispensed with.

The success of the operation depends upon our ability to control primary and secondary hemorrhage, to avoid injury to the bladder, ureters, rectum, and intestines, and to prevent soiling the peritoneum, all of which may be accomplished by proper attention to the details before and during the operation.

We should have several volsella and bullet forceps, and an assortment of reliable clamping forceps of different lengths that will hold firmly upon the tissues and will remain safely clamped.

I prefer the forceps of my device, the blades of which are so grooved that it requires relatively little force to bury them in the tissues, and they cannot slip or be displaced. They are made of three lengths, six and a half, seven, and seven and a half inches. The use of scissors or knife is a matter of individual choice, but we should enucleate as much as possible with the

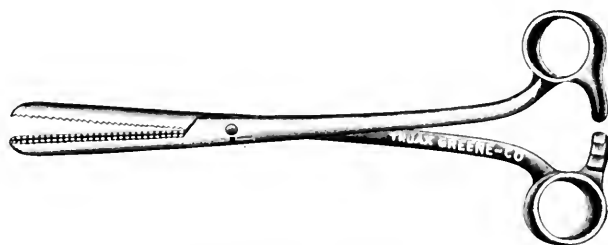


FIG. 7.—Clamping forceps.

fingers and carefully push the bladder and ureters away from the uterus.

The removal of the uterus for bilateral diseases of the adnexa where there are no pus pockets is a simple vaginal hysterectomy, the technique of which need not be considered.

The vaginal incision should first be made behind the cervix, and may be continued at the base of the broad ligaments on each side one-half inch or more beyond the cervix, and if necessary the posterior vaginal wall may be split to the bottom of Douglas' pouch. The incision of the vagina by the thermocautery is not necessary to control hemorrhage or for drainage. Enucleate with the fingers, and, if possible, open the pus cavities and drain and irrigate them before exposing the peritoneum. This can be done in cysts or suppuration in the broad ligaments, or in other forms of pelvic suppuration where the pus has been shut off from the peritoneal cavity by plastic exudation and adhesions. In these cases the pus may be discharged and the cavities irrigated

and disinfected without hemorrhage or the necessity of using a ligature or clamp. The hysterectomy may then be completed without danger of infecting the peritoneum. If there is induration without suppuration the dissection into the folds of the broad ligaments will do no harm, and the resulting drainage may prevent suppuration if the infection is confined to the connective tissue. If the pus pockets cannot be reached and treated in this way the peritoneum may be opened and the tubes and ovaries explored with the finger, at the same time introducing a reflux irrigation tube above the diseased structures and allow-

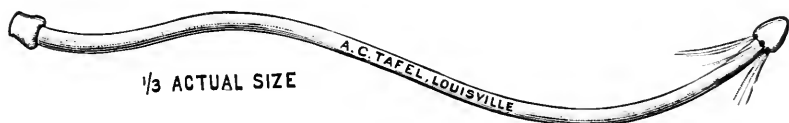


FIG. 8.—Reflux irrigation tube.

ing hot water to flow steadily, so that in the event of accidental or intentional rupture the pus will be forced into the vagina.

If the intestines and the omentum protrude into the vaginal wound or come in contact with the ovaries or tubes filled with pus, they should be replaced and protected by gauze or a sponge before the pus cavities are opened. In such cases if there are intestinal or omental adhesions to the tubes or ovaries, these may be separated before evacuating the pus or enucleating the tubes or ovaries, or they may be separated after the uterus has been removed.



FIG. 9.—Self-retaining catheter.

If, after Douglas' sac has been opened, the uterus can be removed without rupturing the suppurating tubes or ovaries, it should be done, for if these organs are situated high up they can be enucleated or drained more easily and successfully afterward. In cases where it is impossible to enucleate and remove the entire tubes and ovaries they should be drained, irrigated, disinfected, and tamponed, and no immediate or subsequent trouble will usually follow; with few exceptions these patients make uninterrupted recoveries and are permanently cured.

In nearly all cases of hysterectomy, except for myomata, the

uterus may be removed in its entirety; but if this cannot be done we may resort to bilateral section and amputation of the cervix, hemisection of the anterior uterine wall, or antero-posterior section of the uterus. Hemorrhage may be controlled progressively from below upward, but if the uterus has been inverted anteriorly or posteriorly the clamps may be applied from above downward. Pus pockets that are drained and cannot be enucleated should be carefully tamponed before the strips of gauze are introduced to cover the jaws of the forceps. The ends of the strips of gauze should lie between the handles of the forceps and extend nearly to the vulva.

In vaginal hysterectomy for myomata by morcellation adopt any method that best meets the indications, or combine two or more methods—namely, Péan's, Richelot's, Ségond's, Doyen's, Müller's, or Quénu's.

The field of operation should be thoroughly exposed, so that we may see the tissues we cut. Morcellation should not be attempted until the uterine arteries have been ligated or clamped. As morcellation is continued and the broad ligaments are divided, an assistant should make firm and continuous traction with a strong volsella forceps, which is an efficient means of controlling hemorrhage. In hysterectomy for broad-ligament myomata we should usually morcellate the tumors before we remove the uterus, but when myomata are developed in the walls of the uterus we may morcellate the tumor and the uterus simultaneously as may be indicated.

In conclusion I will briefly refer to but five illustrative cases upon whom I recently operated for bilateral diseases of the uterine adnexa and uterine myomata.

CASE I.—A feeble woman with bilateral intraligamentous cysts, the smaller of which had suppurated. The larger, filled with a clear liquid, reached to within one inch of the umbilicus; the suppurating cyst was the size of an orange. Both were drained and irrigated through the posterior vaginal incision before the peritoneum was opened. The uterus was then removed. She had no untoward symptom, was sitting up in six days, and walking a few days later.

CASE II.—A confirmed invalid, with high fever and rapid pulse caused by a pus tube and an ovarian abscess on the left side and a pelvic abscess on the right side. These abscesses were high up and could not be successfully treated until the uterus

was removed. The tube and the ovary on the left side were enucleated, and the pelvic abscess on the right side torn open and irrigated. The patient sat up in seven days and walked a few days later.

CASE III.—Temperature 103° , pulse 130, badly septic, with abdomen distended and pelvic abscesses upon each side extending nearly to the umbilicus. The cavities were opened through the posterior vaginal incision and each drained of more than a pint of offensive pus without opening the peritoneal cavity. The uterus was then removed, but the exudations were so firm that it could not be enucleated and had to be cut out with scissors. She was very feeble and intensely nervous; her pulse varied from 125 to 150 until the clamps were removed thirty-six hours after operation. Twenty-four hours later the pulse was 85, temperature normal, and remained so. She sat up in seven days and walked in ten days.

CASE IV.—No children, but has had six induced abortions, the last two months ago, resulting in septic infection. The vaginal wall was incised, the broad ligaments opened, and a tubo-ovarian abscess on each side drained before exposing the peritoneal cavity. The uterus and the remnants of tubes and ovaries were cleanly removed. She had no untoward symptom, sat up within six days, and left the hospital in two weeks.

CASE V.—No children; had suffered for several years from pressure of a uterine myoma which extended to the umbilicus. The uterus and tumor were removed by morecellation. There was no shock, and the woman recovered without an untoward symptom, sitting up in seven days and able to return home in two weeks.

In none of these cases was the operation followed by nausea, vomiting, or distention, and the patients relished food on the second or third day.

628 FOURTH AVENUE.

THE LOCAL TREATMENT OF CONTUSIONS OF THE EXTERNAL GENITALIA SUBSEQUENT TO PARTURITION.

BYT. RIDGWAY BARKER, M.D.,
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WHILE minor injuries of the external parts concerned in parturition are of uniform occurrence, differing only in extent and degree, they rarely occasion any trouble to the obstetrician, though of considerable moment to the nervous and exhausted parturient. In spite of all that has been said and written concerning the insensibility of these parts after contusion, their congested and excoriated surfaces are exquisitely tender and are far from being benumbed by the amount of bruising to which they have been subjected. If any one is unconvinced of this fact, let him pound a finger and then bring pressure to bear upon the injured member. He will demonstrate very speedily to his own perfect satisfaction that sensibility has not been lost by any manner of means, but rather exaggerated.

How to satisfactorily relieve this distressing condition of the soft parts in the genital region has given me much concern. Any elaborate toilet is out of the question, as it consumes too much time and would necessitate more or less movement of the patient. Cold applications have not been well borne, nor do they seem suited to such a condition under the peculiar circumstances. The cold dressing is disagreeable to the mother and has a tendency to produce a sense of general chilliness. On the other hand, heat is very grateful, as one might expect.

My experience goes to prove that heat is superior to cold as a sedative when pain is dependent upon injury to nerves, unassociated with an acute or chronic inflammatory process.

Following out this line of reasoning based upon clinical data, I have adopted the plan of applying to the external genitalia, in all my cases of confinement where called for, what may be styled the hot medicated pack. After the delivery of the placenta and clots, which is accomplished some fifteen minutes after the expulsion of the fetus, I direct the nurse to procure some hot water, and to a pint of this are added two ounces of fluid extract

of witch-hazel. Into this solution is dipped a large napkin folded into a narrow strip four inches wide and six inches long. This is wrung out and quickly transferred to the affected parts, and lightly covered to prevent wetting the bed linen.

Care should be taken that the cloth is not too hot to be comfortably borne, otherwise the patient may be scalded. The napkin may be changed every fifteen minutes for the first three hours, and afterward every half-hour to hour for some six hours, the frequency depending upon the feelings of the parturient and the condition of the soft parts.

The heat should be kept up continuously, which can only be accomplished by strict attention on the part of the nurse.

Where this plan has been faithfully carried out twelve hours have been found to be quite sufficient to restore the parts to a normal condition.

If, however, great injury has been done to these structures, as when the labor has been a tedious and difficult one and the external parts subjected to prolonged pressure with marked interference with their circulation and innervation, then sloughing, in spite of all remedial measures, can rarely be prevented.

427 SOUTH 16TH STREET.

THE USE OF PELVIMETRY IN GYNECOLOGY.

ILLUSTRATED BY A CASE OF VESICO-VAGINAL FISTULA.

BY

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(With three illustrations.)

PELVIMETRY is not appreciated in gynecology as it is in obstetrics. The reason for this is the obvious immediate practical importance of a knowledge of the pelvic diameters at the time of birth, while to the gynecologist such knowledge is purely retrospective and scientific in character. By tracing back the history of difficult labors, the prolific causes of pelvic inflammatory disease, lacerations, prolapsus uteri, and fistulæ, we gain definite ideas of the causes of such affections, and are enabled to

bring prophylaxis to bear in limiting the frequency of such accidents in the future. Pelvimetry applied at this time goes one step further back and often explains the cause for the difficult labor.

In an article in the *Johns Hopkins Hospital Reports* Dr. Kelly pointed out for the first time the importance of pelvimetry to the gynecologist in a variety of affections he is daily called upon to treat, and described a simple method by which



FIG. 1.—Pressing the extended hand down upon promontory of sacrum.

the conjugata vera could be measured directly with accuracy. The report included a number of cases of abdominal section in which the conjugata was measured by "the external direct method" before operation and the measurement confirmed or corrected by the direct measurement made through the open abdomen. In one-half of the cases the two observations coincided exactly, and in about one-half the estimated conjugate was greater than the real by one-half of a centimetre.

The method briefly is as follows :

The patient lies on her back, with the thighs and knees slightly flexed and the head and chest elevated by a small pillow, relaxing the abdominal muscles. The examiner stands on the left, facing her, and, with the palmar surface of the open left hand directed downward, he makes with graduated pressure deep palpation in the median line directly over the superior strait, feeling for the promontory of the sacrum with the tips of



FIG. 2.—Indenting palm with finger nail over most prominent part on posterior surface of symphysis pubis.

the fingers. When the promontory is felt distinctly the fingers are swept over it to gain a familiarity with its position, and then allowed to rest at a point directly above it, so as to avoid interposing the thickness of the abdominal walls in making the measurement. This fixes the posterior point of the conjugate diameter. The free hand now determines the anterior point of the diameter by pressing down with the middle finger behind the

symphysis directly over its most prominent point. The finger is then turned up and an indentation made with the nail on the palm of the obstetrical hand. Keeping the hand rigid, it is raised from the abdomen and the distance between the tip of the finger to the nail mark is measured, and this is the *conjugata vera*.

The chief sources of error arise from pressing against the



FIG. 3.—Length of conjugate diameter measured from tip of middle finger to indentation on palm.

promontory instead of resting the fingers at a point vertically above it. Fortunately the liability to error is the least in the narrowest pelvis, and greatest the larger the superior strait.

In obstetrics this method is not feasible, owing to the fact that the superior strait is filled with the pregnant uterus. So here we must resort to the indirect method of measuring the oblique conjugate. Dr. Kelly's method is, however, the only one applicable in gynecology, for the normal resiliency of the va-

ginal and pelvic tissues will not allow us to reach the promontory of the sacrum by the vaginal route, and the difficulties are greater if there is any inflammatory trouble present. To illustrate these points I will cite a case of vesico-vaginal fistula from the wards of the Johns Hopkins Hospital:

Mrs. H., æt. 32, white, came into the hospital January 3d, unable to retain her urine and with occasional loss of control of her bowels.

Her condition was one of pain and great discomfort. The dribbling urine had provoked so much excoriation of the vulvar orifice and thighs that she said if nothing could be done she intended seeking relief by suicide.

She had been married two years and had with greatest difficulty given birth to two children. On both occasions instrumental delivery was necessary and the floor of the pelvis had been greatly lacerated. Both of the children died during labor, and the physician who had her in charge said that her pelvis was so contracted that she could never be delivered of a living child.

She has not menstruated since the birth of her last child, six months before.

Her second labor was even more difficult than the first, which was instrumental and the child dead. As the child was very large, the forceps was applied and the recto-vaginal septum torn through. The anterior vaginal wall was also torn near the cervix, the laceration extending into the bladder. Since then she has had incontinence of urine, which has persisted ever since, and when her bowels are loose she cannot control them.

Inspection of the external genitalia shows that the genital hairs are short (1.5 centimetres long), rigid, and with slight incrustations about their extremities. The labia majora from the anterior commissure around to the anus are the seat of a dermatitis which in newer parts seems to be papillary, and around the roots of the hairs, the point of exit of which, on the top of a papilla, is marked by a raw surface about 1 millimetre in diameter. There are several edematous-looking folds with thickened skin at the left labio-femoral crease.

The recto-vaginal septum is broken down; sphincter pits separated 3 centimetres; distance from urethra to posterior vaginal wall, 2 centimetres. The vaginal tear has probably been from 3.5 to 4 centimetres in length.

The vaginal outlet is not enlarged and there is no tendency to prolapsus; the levator muscles can be felt at the sides, and they are strong and unbroken, forming a strong diaphragm closing the floor of the pelvis.

Vagina is smooth, and there is no evidence of scar tissue except at the vault, where there is a sharp falciform scar at the junction of the right lateral with the anterior vaginal wall. The cervix is found to be the seat of a stellate laceration dividing it into three parts, one posterior and two lateral thirds; there is, therefore, a tear anteriorly and median; from this point (*i.e.*, the tip of this tear) there is a sulcus of scar tissue originating between the two anterior thirds of the cervix and extending down along the anterior wall of the vagina to a point 1 centimetre below the cervix uteri and 5 millimetres above the external urethral orifice, and at this point there is a vesico-vaginal fistula 3 millimetres in diameter and a little to the right of the median line. There is no scar tissue except that forming the edge of the fistula, and the external urethral orifice is normal, there being no mechanical injuries to the vulva except those noted above.

The uterus reclines in the sacral hollow; the ovaries and tubes are normal.

The patient was then put in the knee-breast position and a cystoscopic examination made. By this means the fistula is seen as a transverse narrow slit or line across the mucous membrane of the bladder.

Pelvic measurements.—Baudelocque's diameter, 17 centimetres; distance between iliac crests, 29 centimetres; distance between anterior superior spines, 28 centimetres; distance between trochanters, 31 centimetres; distance between tubera ischii, 7.5 centimetres.

On account of the dense scar tissue in the vaginal vault it was impossible to measure the conjugata obliqua by the vagina.

The external direct method gives the conjugata vera to be 7 centimetres.

Diagnosis.—A flat pelvis of 7 centimetres or less; retropositio uteri; cicatrices in the vault, vesico-vaginal fistula, complete laceration of the vaginal outlet.

Several days after this (January 12th) Dr. Kelly operated upon the patient, first repairing the fistula by denuding the edges and suturing the raw surfaces thus formed together, and then repairing the laceration of the vaginal outlet by his opera-

tion for a complete tear. She made an uninterrupted recovery, and on the tenth day the sutures were removed, giving a perfect result, both of the fistula and perineum. At no time was there the slightest leakage from the bladder, and the patient left the hospital entirely well.

This case serves very well to illustrate the importance of pelvimetry in parous women, and more especially of the external direct method of measurement in gynecological cases.

VAGINAL SECTION AND DRAINAGE FOR PELVIC ABSCESS.

WITH REPORT OF CASES.¹

BY

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Pcs in the Fallopian tube, ovary, or pelvic cellular tissue will be considered a pelvic abscess.

The object of this paper is to advocate vaginal section and drainage for exceptional cases of pelvic abscess. Most of the literature on the treatment of pelvic abscess through the vagina appeared before the pathology of this condition was well understood and before aseptic surgery was practised, and is therefore of little practical value. Many gynecologists, among them our esteemed President,² advocate abdominal section in all cases of pelvic abscess. Dr. Clement Cleveland recently read a paper on "The Treatment of Pelvic Abscess by Vaginal Puncture and Drainage,"³ in which he demonstrated that the operation was a valuable procedure in selected cases.

A brief report of a few cases of pelvic abscess which I have treated by vaginal section and drainage will, I think, facilitate the presentation of the subject.

Mrs. S. was referred to me by Dr. A. W. Bigelow in May, 1893. Examination showed an abscess filling the entire pelvis, pushing the uterus and vagina forward, and extending above the

¹ Read before the Chicago Gynecological Society, May 24th, 1895.

² "Treatment of Pelvic Abscesses by Laparotomy," Chicago Medical Recorder, May, 1894, p. 295.

³ New York Journal of Gynecology and Obstetrics, June, 1894, p. 652.

brim of the pelvis on one side. The abscess was of long standing and the patient feeble and emaciated from sepsis. Vaginal section was performed with irrigation and drainage. About one pint of pus was evacuated; operation extraperitoneal. The patient made a rapid and complete recovery. The drainage tubes were removed in about four weeks. Dr. Bigelow reported on April 11th, 1895: "I last saw Mrs. S. some three months ago. She was in perfect health and has had no return of the pelvic trouble."

Mrs. S. O. was admitted to St. Luke's Hospital in January, 1895, suffering severely from disease of the left tube and ovary, which were adherent in Douglas' cul-de-sac. The uterus was retroverted. Her temperature was normal. Vaginal section revealed a small abscess between the ovary and the posterior vaginal wall, which was evacuated and the sac thoroughly cleansed. The separation of the adhesions about the ovary and thickened tube was followed by restoration of the uterus to its normal position and elevation of the left uterine appendage. The right uterine appendage was normal. The wound was packed with gauze. Recovery from the operation was satisfactory, and the uterus and appendages remained in normal position. Recent examination shows some thickening to the left of the uterus, which does not occasion any special distress. The operation was made for exploration. The ovary and tube did not appear to be so diseased as to indicate excision.

Mrs. S., aged 28, patient of Dr. Joseph Trenchard, had a large abscess which filled the pelvis, pushed the vagina forward, and extended to the perineum. The abscess had occasionally discharged through the rectum. The patient was emaciated, temperature 100° to 103°, pulse rapid and weak. In February, 1894, I made vaginal section, irrigation, and drainage. The abscess contained about one pint of offensive pus and liquid feces. The patient made a rapid and uninterrupted recovery and the drainage tubes were removed about four weeks after the operation. At this time examination revealed very little thickening posterior to the uterus. Fecal matter escaped through the tubes for only a short time after the operation. On April 5th, 1895, Dr. Trenchard wrote: "I heard from Mrs. S. yesterday. She rapidly regained her usual health and has remained perfectly well." In this case abdominal section would probably have resulted fatally.

Miss L. R., aged 18, was admitted to St. Luke's Hospital June 24th, 1894. Upon examination a mass was felt posterior and to the left of the uterus, extending above the pelvic brim. Abdominal section revealed an agglutinated mass of omentum, intestines, and pelvic abscess. The adhesions were extensive and very firm. A left tubo-ovarian abscess was found which contained about one ounce of pus. The abscess cavity was shut off from the general abdominal cavity by gauze packing, and the abscess was opened, drained, and a portion of the abdominal incision closed. Vaginal section was now made and an abscess of the right uterine appendages opened, irrigated, and drained. The patient's temperature soon became normal. The drainage tubes were removed at the end of four weeks. Examination showed the uterus to be fixed and showed some induration in the pelvis. The patient felt perfectly well, however, and was discharged from the hospital. I have been unable to get a recent report of the case.

Mrs. C. C., aged 32, was admitted to St. Luke's Hospital June 26th, 1894. Examination showed extensive induration lateral and posterior to the uterus. The uterus and upper portion of the vagina were pushed forward, and the mass extended upward on the left side of the pelvis. The abdominal wall was exceedingly thick. The patient had no symptoms of septic infection and her history indicated that the abscess had existed a very long time. Vaginal section was made with drainage and irrigation, and about one pint of pus was evacuated. The patient felt perfectly well after the operation. At the end of three weeks the drainage tubes were removed. Examination showed some thickening to the left of the uterus. Two months later a large mass was found to the left of the uterus, which was opened through the old incision, drained, and irrigated. Examination during the operation induced me to think that the abscess was ovarian. The drainage tubes were removed at the end of six months. Examination on May 15th, 1895, showed a sinus two inches deep, some discharge of pus, and the uterus not freely mobile. Some thickening was felt posterior and to the left of the uterus, but no distinct swelling existed and the patient's health was excellent. The abscess caused very little suffering; removal by abdominal section would have been difficult and dangerous.

Mrs. H. S., pelvic abscess following secondary abdominal sec-

tion for severe hemorrhage. On account of the feeble and anemic condition of the patient blood clots were left in the abdomen, which became infected and produced the abscess. The abscess displaced the posterior vaginal wall forward. Vaginal section was made in January, 1895, with irrigation and drainage; about one pint of offensive pus and blood clots was removed. Recovery was satisfactory but slow, on account of the anemic condition of the patient. Recent examination shows no evidence of pelvic disease. This patient could not have borne a third abdominal section.

Miss S. L., aged 22, was admitted to St. Luke's Hospital on the evening of January 18th, 1895. She had a temperature of 103°, pulse 120, and her general condition was exceedingly grave. She gave a history of induced abortion ten days previously. Examination showed a large mass high up in the pelvis to the left of the uterus. She had marked tympanites, general abdominal tenderness, and constant nausea and vomiting. The symptoms indicated general peritonitis. January 19th, temperature 103°, pulse 130. Shreds of offensive membrane and small pieces of placenta were removed from the uterus with placenta forceps and curette. Section of the vagina was made to the left of the uterus, and the finger was forced up between the folds of the broad ligament until it came in contact with the Fallopian tube. A blunt instrument was introduced along the finger as a guide into the tubal abscess; the opening thus made was enlarged with the finger, and two rubber drainage tubes were inserted into the abscess sac. Two to four ounces of very offensive sanguinolent pus escaped. Frequent antiseptic irrigations were used. The patient became almost pulseless during the operation, which occupied only a few minutes. Her condition improved slightly after the operation, but two days later a similar mass was found on the right side. An incision was made to the right of the cervix and the abscess was treated like the previous one. This abscess contained also from two to four ounces of offensive pus. Both the operations were extraperitoneal. The patient's temperature immediately dropped three degrees and soon became normal, and her condition rapidly improved. She sat up in about three weeks, and left the hospital thirty-eight days after the operation, feeling perfectly well. The drainage tubes were removed on the thirty-third day. Examination showed a movable mass, probably ovarian, high up to the

left of the uterus. Examination of the right side revealed no evidence of disease. Examination made about April 1st showed no appreciable change in the mass. This will probably necessitate an abdominal section, which can now, I believe, be safely performed. Had abdominal section been attempted in this case the patient would certainly have died during the operation.

Mrs. B. R., aged 30, was admitted to St. Luke's Hospital March 10th, 1895. She gave a history of a miscarriage two weeks previously, and her last menstruation occurred two months before. She had been curetted twice for supposed retained portions of placenta before coming to the hospital. Temperature 103°, pulse 140; marked anemia; abdomen tympanitic; general condition grave. On examination a mass was found which filled the pelvis and extended above the pelvic brim on the left side, and pushed the uterus and vagina forward. Vaginal section was made and from one to two quarts of very offensive blood clots removed. Digital examination within the sac revealed an enlargement of the left tube, which prolapsed into the sac cavity. The case was undoubtedly one of extrauterine pregnancy, and the blood clot had become infected during the curettements. The sac was drained and irrigated. The temperature dropped suddenly and gradually became normal. At the end of three weeks she left the hospital. At this time the discharge was slight and the mass on the left side was small. Her family physician recently informed me that he had removed the drainage tubes, that all discharge had ceased, and that the pelvis was apparently normal. An abdominal section would undoubtedly have been fatal in this case.

Mrs. M. S., aged 37, was admitted to St. Luke's Hospital March 23d, 1895. Temperature 102.4°, pulse 118; abdomen tympanitic; severe pain in lower abdomen; patient anemic; symptoms of general peritonitis. Examination revealed a mass filling the pelvis, pushing the uterus and vagina forward, and extending nearly to the umbilicus. Her last menstruation commenced on January 1st at the regular time, but hemorrhage continued until the time of operation. Vaginal section posterior to the cervix was made and about one quart of partly clotted blood was removed. A mass remained to the left of the uterus. The sac was irrigated and drained. The case was probably one of extrauterine pregnancy. The patient has been practically free from sepsis, pain, or any discomfort since the operation. Exami-

nation April 10th showed no evidence of pelvic disease. The drainage tubes were removed and the patient discharged from the hospital.

Technique of the operation.—The patient is prepared as for vaginal hysterectomy. The abdomen should also be prepared on account of the possible necessity of a celiotomy. The patient is anesthetized and placed in the lithotomy position; the posterior vaginal wall is retracted by Simon's speculum, and the cervix drawn down with a double tenaculum forceps. The uterus is dilated, the uterine cavity explored, curetted, irrigated, and packed with gauze if indicated. An incision about one inch long through the vaginal wall is made near the cervix, opposite the most prominent point of the tumor. This will usually be posterior to the cervix, but may be lateral as in case of Miss S. L., and possibly anterior to the cervix. Any connective tissue between the vaginal wall and the abscess is separated with the finger, or it may be necessary to divide some of the fascia with blunt-pointed scissors. Careful exploration is now made to determine whether the peritoneal cavity has been opened; if so, it should be carefully walled off with gauze packing. The finger may now be passed directly into the abscess, or if the wall is tough it may be opened by a blunt instrument, such as a grooved director or sound, and the opening enlarged with the finger or forceps. All of the pus is removed by thorough irrigation with sterilized water. Careful bimanual examination to determine the condition of the pelvic contents is now made with one or two fingers of the left hand in the abscess sac and the right hand over the abdomen. If additional abscesses are found they may be punctured through the abscess wall, may be opened by another vaginal section, or may be removed through an abdominal incision. The mode of procedure must be determined by the indications in each case.

Two drainage tubes sutured together, one large and one small, are now inserted into the abscess cavity. The large tube is perforated for a distance of one or two inches, the end split, inverted, and sewed so as to form a shoulder on either side which retains it in place after the abscess wall has contracted about it. The drainage tubes are fastened to the cervix by a suture for retention until the abscess and vaginal walls contract about them.

The after-treatment consists principally in the use of peroxide

of hydrogen, frequent irrigations, and antiseptic douches. Any gauze left between the vaginal and abscess walls should be removed twenty-four or forty-eight hours after the operation. The drainage tubes should be left in place as long as the discharge continues; this may be for from three weeks to six months. When the rubber tubing becomes offensive it should be changed.

Indications for the operation.—1. When the condition of the patient is such as to make abdominal section extremely dangerous.

2. When the abscess is large, of long standing, and situated low in the pelvis, and when the patient gives a history of peritonitis.

3. When abdominal section reveals extensive and firm intestinal adhesions.

4. When the abscess is on the floor of the pelvis and is complicated by rectal fistulæ.

5. Vaginal section may be indicated for the separation of adhesions which fix the ovaries and tubes on the floor of the pelvis, and for examination of the ovaries and tubes.

6. Puerperal abscesses. These abscesses frequently do not involve the Fallopian tubes or ovaries, and satisfactory results usually follow thorough drainage of them.

Results. 1. *Immediate.*—I have done vaginal section for pelvic abscess nineteen times, and in every case with relatively satisfactory results. In two cases operations for secondary abscesses were required; in one case abdominal section was necessary to complete the operation. Excepting in the two cases which developed additional or secondary abscesses, the temperature has become practically normal within a short time after the operation. The patients have suffered very little after the operation—in fact, pain has usually been absent. The patients have almost invariably been out of bed at the end of two weeks. Aside from the accidents consequent to anesthesia the operation is devoid of danger.

2. *Remote.*—Many of the operations are of too recent date to permit a satisfactory report of the ultimate success. Some of the operations, however, date back three years. None of the patients have, to my knowledge, suffered especially from pelvic disease after the operation. Three of the patients have some

enlargement to the left of the uterus which may later on require abdominal section, and two of them have a sinus.

Advantages of the operation.—1. It is not dangerous to life.

2. It is followed by little or no suffering.

3. Recovery is rapid.

4. No raw surfaces are left in the abdominal cavity to cause adhesions.

Objections to the operation.—1. It is applicable in only a small per cent of the cases of pelvic abscess.

2. Diseased tissue is not removed. The tissues may, however, become normal after the abscess is opened and drained, as has frequently been the case after spontaneous rupture or puncture of the abscess. The favorable results which have followed simple incision and drainage of abscesses in other parts of the body may indicate that some cases of pelvic abscess have been treated by too radical measures. The nature of the abscess may be a guide in the selection of the method of treatment. For example, tubercular or gonorrheal abscesses indicate excision more than abscesses due to some other infection.

Remarks.—This operation should take the place of vaginal puncture or aspiration, which has been the usual vaginal operation for pelvic abscess. In the latter operation the bladder, rectum or some other portion of the intestinal tract, and large blood vessels have been punctured. I know of two cases in which large blood vessels have been injured with fatal results. These accidents are avoidable in the operation which I have described.

Many authors advise, in cases in which doubt exists as to the choice between abdominal section and vaginal puncture, that celiotomy be first performed, and then, if indicated, that puncture through the vagina be made. In such a case I would advise vaginal section, which could be immediately followed by abdominal section, if necessary. Should the latter operation be necessary the previous vaginal section would not compromise the chances of recovery, but, on the contrary, would afford a perfect avenue for drainage and would remove the pus which otherwise would be liable to escape into the abdominal cavity.

For suspected disease low in the pelvis, vaginal section permits thorough and satisfactory exploration, without subjecting the patient to the dangers consequent to abdominal section.

CASES OF MALFORMATION OF FEMALE GENITALIA.¹UTERUS CORDIFORMIS—VAGINAL SEPTUM—PERFORATED LABIA MINORA—
UNDEVELOPED UTERUS.

BY

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WITHIN the past six months the following anomalies have come under my observation:

1. *Uterus cordiformis*.—B. F., born in England, 28 years old, married five years, sterile, came under treatment for pelvic pain which began three days before her menses and continued from two to three weeks afterward; made worse by walking. Defecation painful. Periods every four weeks, duration seven to eight days.

There being adherent retroversion below the sacral promontory, with prolapse of large and tender ovaries, celiotomy was done to free adhesions and attach the uterus to the abdominal wall. The right ovary, being diseased and having a greatly elongated pedicle, which would have allowed it to remain prolapsed in the recto-uterine pouch, was removed with its tube. The left, though large and studded with retention cysts from a thickened capsule, was allowed to remain, especially as pregnancy was desired.

The uterine body was nearly twice the normal width and presented that form of partial division known as the heart-shaped uterus. The fundus was indented externally by a sulcus separating the two horns to the depth of half an inch, while the lower half of the organ was normal in shape and size. A band of pale fibrous tissue occupied the bottom of the sulcus and extended half-way down the front of the uterus over a space half an inch wide. The uterine cavity was two and a half inches in depth in the median line, while the sound passed readily across from one horn to the other, showing the apparent absence of a septum. Otherwise the organs were normal.

The bifid uterus, caused by the failure in coalescence of the

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, May 16th, 1895.

ducts of Müller, is a condition of comparative rarity. It is frequently undiscovered even when pregnancy occurs, as the non-pregnant horn does not take any part in the enlargement. A considerable number of cases have been detected post mortem, owing to the rupture of the portion of the uterus which had become impregnated. Kussmaul, however, figures a uterus pregnant near term for the eleventh time, where one half was entirely wanting, the tube and round ligament of one side ending by the side of the cervix. He was able to collect prior to 1859 some sixty-five cases where pregnancy had occurred. Indeed, pregnancy has occurred in the two horns separately but at the same time. In a case reported by Geiss¹ two living children were born, while in another, reported by Graily Hewitt,² one child was living at birth while the other was dead.

In cases of partial division such as the one reported there is no apparent reason why pregnancy should not occur and terminate safely. The chances of it are greatly increased by the operative restoration of the normal position of the organ.

2. *Vaginal septum, partial*.—S. B., colored, aged 54, single. There was senile atrophy of the external genitalia, except the hood of the clitoris, which was large. A firm band of connective tissue divided the vaginal canal in the median line, half an inch behind the remains of the hymen. The vagina admitted only the tip of the finger on either side of this septum, which was half an inch from without inward and a quarter of an inch in thickness. It was evidently congenital, there being no evidence of scar tissue. After division of the septum the uterus was found to be small, measuring two inches in length, strongly retroflexed, but movable. A firm body with loose attachment in front of the plane of the uterus on the right side was probably an enlarged ovary abnormally placed.

No demonstrable evidence of a double uterus was obtainable.

3. *Bilateral perforation of labia minora*.—S. J., widow, applied for symptoms due to adherent retroversion. The labia minora were unusually large and well developed, the two together measuring three inches across. There was in each labium a central circular perforation half an inch in diameter. The openings were exactly opposite one another and were congenital.

One was reminded of the case with which a padlock could

¹ Lancet, 1828-29, p. 423.

² Ibid, 1862, vol. i., p. 660.

have been attached in this case, as in the tale of the jealous husband.

4. *Infantile uterus* (two cases in epileptics).—M. B., 19 years; single. Jacksonian epilepsy since eighth year. Sent by her parents from an interior county because she had never menstruated, which was supposed to have a relation to her epilepsy. The history showed occasional attacks of chorea, with epileptic attacks at approximately monthly intervals, which began in her eighth year. She had no signs whatever of a molimen and was ignorant of the nature of menstruation. Examination showed the amenorrhea to be due to faulty development and not to retention. The uterus measured only one inch and was retroverted to the horizontal. Ovaries and tubes could not be felt.

No local treatment was advised for the lack of development, which was considered as having no relation to the epilepsy.

5. *Infantile uterus*.—M. H., 19 years, single. Menstruation established at 11 years, but irregular till her seventeenth year, since which it has been normal. Appears now every four weeks, lasts three days; quantity normal; no pain at all.

External genitals small but normal. Uterus in the median line, directed in the long axis of the body; width at the fundus, three-quarters of an inch; sound measurement, one inch. Per rectum tubes felt as soft cords in the upper edge of a crescentic fold sweeping from side to side of the pelvis. Ovaries very high up; the right very small and reached with difficulty; the left was from half to one-third normal size, quite tender, but slightly movable and very high up.

The utter hopelessness of attempting to show a causal relation between ovarian function and true epilepsy could not be better shown than in the two young women here compared. Both have congenitally defective sexual apparatus, from pure lack of development, without any inflammatory complication and with no painful or irritable areas or nerve pressure in the genital region or elsewhere sufficient to cause reflex symptoms. While one has normal menstruation the other has none at all, yet both have epilepsy.

They are of the same age and are of similar physical type; rather under weight; not vigorous, but showing no dyscrasia; intelligence rather below the average. In cases such as the one with amenorrhea, an attempt is made by some physicians to bring about development, or at least function, by determining

blood to the part through electrical or other stimulation, by repeated dilatation, and the like. All this seems useless to the writer in a congenitally defective case, and not without serious drawbacks. That the establishment of function would be without effect on the epilepsy has just been illustrated. Where the amenorrhea is due simply to delay and not to retention or to lack of development, general hygiene and time will effect a cure.

3727 CHESTNUT STREET.

DRAINAGE IN PUERPERAL SEPSIS.

WITH A REPORT OF CASES.¹

BY

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Philadelphia, Pa.

THE surgical treatment of puerperal sepsis remains at present a field in which much is to be learned and in which grounds for positive opinions are not yet clearly defined. The necessity for thorough drainage in septic conditions of the abdomen and pelvis is conceded by all experienced operators. There is, however, room for differences in opinion as to the time when such a procedure becomes necessary and the exact method of its performance. With a view of adding to our clinical data upon this question, the following cases are reported:

CASE I.—M. B., a Russian Jewess, was admitted to the Philadelphia Hospital during the past winter, having been confined in a tenement a short time previously. On admission the placenta was within the uterus. The resident physician emptied the womb and disinfected the vagina. The patient gradually developed puerperal septic infection, and ten days after admission the uterus was enretted and irrigated and packed with gauze. A temporary improvement followed. Subsequently the patient's strength began to fail, her temperature indicated a progressive septic process, she ate little and slept poorly, and her mental distress was augmented by the death of her infant. At this time—three weeks after childbirth—vaginal examination dis-

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, May 16th, 1895.

closed upon the left side of her pelvis a mass in which fluctuation was entirely absent; indeed, so firm and tense was this tumor as to occasion a possible suspicion that sarcoma was developing from the pelvic wall. The patient was repeatedly examined to determine the presence of fluctuation, but this sign was not present. In spite of stimulation and forced feeding the patient grew steadily weaker. Her temperature ranged from 101° to $102\frac{1}{2}^{\circ}$ F., her pulse being considerably above 100. In view of her progressive failure and the uncertainty of her condition, it was thought wise to subject her to celiotomy with a view to positive diagnosis and operative treatment. The patient was given to understand that the reason for operation was her failure to improve under other methods of treatment.

The abdomen was opened while the patient was in the Trendelenburg posture. Upon entering the peritoneal cavity the omentum was found adherent upon the left side of the pelvis as low down as the brim. It was ligated and cut between the ligatures. The uterus was slightly enlarged, firm, and well contracted. The tubes were bright red, but no pus could be detected in them. The mass upon the left side of the uterus was found to be an exudate. It showed no signs of forming pus. The uterus was freed from its adhesions, the left tube carefully examined, and the mass of exudate upon the left side of the pelvis was thoroughly broken up with the fingers. Flakes of yellowish lymph were found in the exudate. The uterus was brought up to its proper position, Douglas' cul-de-sac was opened into the vagina, and a large rubber drainage tube was passed through the abdominal wall and into the vagina, appearing at the vulva. The site of the exudate was thoroughly packed with iodoform gauze, and the end of the gauze carried down along the drainage tube into the vagina. The abdominal wound was then closed tightly over the gauze; the upper end of the drainage tube was allowed to protrude through the abdominal wound.

The patient's relief following the operation was decided. Her improvement, although slow, was steady and gratifying. Her pelvic pain disappeared, her appetite improved, while she slept much better than formerly. The drainage tube was thoroughly irrigated from above with a saturated solution of boracic acid every six hours. The gauze was gradually brought away per vaginam. A discharge of sanious pus occurred which steadily diminished. The drainage tube was then removed and the

abdominal wound closed, the opening in Douglas' cul-de-sac being maintained by packing the aperture with gauze. The discharge steadily diminished and finally ceased. The abdominal wound united and the opening into the vagina through Douglas' cul-de-sac closed. The patient was finally discharged greatly improved in weight and general health.

CASE II.—The patient, a woman aged 40 years, had been married for a number of years, had borne several children, and had several miscarriages. She gave a history of having been ill, after her last miscarriage, for several days in bed. Upon admission to the hospital the patient's temperature was 102° F., her pulse above 100, and she complained of pain in the region of the pelvis. Her general appearance was that of a person profoundly infected. The only history that could be gained of her illness was that, following severe exertion and exposure to cold and wet in washing upon a cold day, she was seized with violent pains in the lower portion of the abdomen.

As soon as the patient came into the hospital she was thoroughly purged and given food and stimulants at short intervals. It was noticed that the patient's mental condition showed the effects of septic poison, the phenomenon known as "coma vigil" being present. Under appropriate treatment and the free use of stimulants the patient's condition improved for the first twenty-four hours after admission. The abdomen was flat, the temperature fell to between 100° and 101° F., and the pulse, although rapid, increased somewhat in volume. In spite, however, of her favorable symptoms, it was thought that a serious condition of septic infection was present. Accordingly, thirty-six hours after admission, the abdomen was opened. The intestines and peritoneum were found brilliantly injected. Upon the intestines were masses of yellow lymph which were adherent to the wall of the bowel. The uterus, tubes, and ovaries showed no abscess. In Douglas' cul-de-sac were found several ounces of exceedingly foul and thin pus whose odor was most offensive. The abdomen was very freely flushed with sterile water and drained, as in the preceding case. A distinctly unfavorable prognosis was given. Following the operation the patient improved very perceptibly; the bowels were moved; she was free from pain. Thirty-six hours after operation she died suddenly of heart failure.

The second of these cases is a familiar example of the unfor-

fortunate fact that a patient who has once suffered from septic infection in the pelvis may at some future time perish from sepsis after she has apparently recovered from the original attack. The history in Case 2 was that the patient had suffered from an abortion nearly a year before her death. She had never been well after that, being always subject to pains and dragging sensations about the pelvis. Her temporary improvement was only apparent, although her temperature fell sufficiently to deceive one who has not observed cases of pelvic sepsis. The most valuable method of treatment to which this patient was subjected after the operation was copious transfusion with normal saline solution. Her case illustrates the insidious character of abdominal sepsis which is so frequently observed.

In Case 1 it was expected that the exudate would break down and form an abscess which could be opened at the most dependent point and drained. The persistence of the solid mass and the patient's steady failure in strength led to the determination to hasten, if possible, the resolution of the exudate. When the patient left the hospital there was still a thickening in the broad ligament of the affected side, not sensitive to pressure, the uterus remaining quite movable and in fairly good position. The patient's temperature had been normal for some weeks before she left, her strength and appetite had returned, she was able to walk about and do light work, and although she complained at times of stiffness in walking, still she seemed quite able to leave the hospital. The practical lesson which these cases teach, to my mind, is the fact that interference by surgical procedure in septic cases can rarely be practised too early and is often undertaken too late.

250 SOUTH 21ST STREET.

THE LIGATURE IN OÖPHORECTOMY.¹

BY

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My object in presenting this very short paper is to call attention to some disadvantages which attend the commonly used

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, May 16th, 1895.

method of ligating the pedicle in operations for the removal of the uterine appendages. The methods usually employed are the Tait-Staffordshire knot and the interlocking or link ligature. One or other of these ligatures is used by most operators in a routine way in all cases.

The objections to these ligatures are :

The liability to slip.

The difficulty or impossibility in some cases of removing all the ovary and tube.

The fact that the broad ligament is puckered up and made more tense than normal, and may for this reason cause subsequent pain and discomfort.

An unnecessary amount of tissue is strangulated.

Most operators have seen cases, either in their own experience or in the experience of others, in which the ligature has slipped from the pedicle, either during the operation or some days afterward. I think that this accident, usually unrecognized, is a very common cause of death after oöphorectomy. Tait speaks of a certain number of cases in his own experience in which a hematoma occurred in the broad ligament some hours or days after operation. He says :¹ "I cannot form any exact estimate of how many cases of these operative hematoceles I have seen, but it certainly is not less than fifty, and is more likely to be seventy or eighty."

It seems probable that this accident is due to the retraction or slipping of the artery from the embrace of the ligature, while the remaining mass of tissue which forms the pedicle is still retained and the hemorrhage therefore is confined to the broad ligament. I have seen this accident happen before the abdomen had been closed, and have sought for and ligated separately the retracted vessel.

Slipping of the ligature is due to the form of the mass of tissue which is ligated. The broad ligament is drawn up into a more or less conical shape, all parts converging toward the ligature, and the ligature is really placed at the apex of a cone, from which it may readily slip. And the elastic artery, tied when upon the stretch, tends to retract and escape from the embrace of the ligature.

The second objection is the difficulty or impossibility of removing all the ovary and tube. If the broad ligament is tense,

¹ "Diseases of Women," p. 468.

as it so often is in single women, or if it is thickened from inflammatory deposit, it is sometimes impossible to bring the tube and ovary through the abdominal incision and to obtain a pedicle which can be ligated so that we may with safety remove all of the ovary. And it is in just such cases that it is usually most desirable that all ovarian tissue should be removed.

The third objection—the puckering and tension of the broad ligament—may be of less importance than those just considered. However, it seems probable that some of the pain which women suffer after oöphorectomy is due to the traction and counter-traction exerted by different parts of the broad ligament upon a sensitive cicatrix. The broad ligament is pulled up from different directions and converges to the cicatrix, which becomes the point from which the lines of traction radiate.

The fourth objection is one which appeals to our surgical sense. It is always better surgery to ligate the vessel alone than to include with it a mass of surrounding tissue.

The objections which I have just considered may all be avoided by ligating the distal and the proximal portions of the ovarian arteries with distinct ligatures and then cutting away the tube and ovary. The following is the method of procedure: The first ligature is passed through the broad ligament near the pelvic wall, securing the proximal portion of the ovarian artery. The second ligature is passed through the broad ligament at the uterine cornua, securing the distal portion of the artery. The second ligature may include the Fallopian tube if there be no disease of the isthmus, or it may be passed immediately beneath the tube if it be necessary to exsect the tube from the uterine cornua. With the ligatures thus placed the tube and ovary may be completely and safely removed. Usually there is no bleeding from the portion of the broad ligament between the ligatures. Any bleeding which does occur can be readily controlled by separate ligature.

It is not necessary to place both ligatures before cutting away the ovary and tube. The first ligature may be placed about the proximal portion of the ovarian artery and then the infundibulo-pelvic ligament may be cut, bleeding from the distal end being controlled with forceps. This will enable the operator readily to bring the ovary and tube through the incision and to ligate the ovarian artery at the uterine cornua.

The advantages of this method are obvious. The ligatures

are placed about the vessel while in its normal position and there is no tendency to retraction or slipping.

The minimum amount of tissue is included in the ligatures.

All ovarian tissue can be removed.

There is no traction whatever upon the scar.

1331 SPRUCE STREET.

DERMOID CYSTS AND PREGNANCY.

BY

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A DERMOID cyst is a rare complication in pregnancy. Out of two thousand two hundred and seventy-five ovariectomies in general collected by Olshausen only eighty were for dermoid cysts—3.5 per cent.

In Dsirne's¹ complete statistics of one hundred and thirty-five operations for ovarian tumors in pregnancy, there were ten for dermoid cysts. Homans has since reported an operation, and my own, about to be reported, is, as far as I know, the twelfth on record.

Schröder and Müller agree that dermoid cysts are the most dangerous ovarian tumors complicating the child-bearing period, but in the twelve recorded operations before labor there was not a single maternal death and there was but a single abortion in consequence of the operation. These figures argue eloquently for an early operation upon ovarian tumors complicating pregnancy.

The following extract from my case book shows how closely a pelvic tumor with intrauterine pregnancy may resemble in its clinical aspects extrauterine pregnancy:

Monday, April 22d: Mrs. K.; married five years; one child four years ago; miscarriage at two months ten months ago, convalescence normal.

Sickness returned in four weeks, natural, lasts five to six days, not very profuse. Had for eight months succeeding the miscarriage slight pain or soreness in left groin from time to time; otherwise in good health. Last normal sickness February 22d, five to six days; quantity of flow about as usual.

¹ Archiv für Gynäkologie, xlii., p. 415.

Had at the time a bad cold. During March pain in left groin, gradually increased; there were intervals, however, free from pain.

No trace of sickness that should have appeared about March 22d, except a mucous discharge.

Three weeks ago went on a journey, part of which was rough driving. Caught a heavy cold, and on every attack of coughing or sneezing felt sharp pain in the left groin. The pain has been getting steadily worse, although the cold soon passed away. A week ago had such a violent attack during a walk that she was entirely disabled and sank to the ground.

Has had since then as severe attacks while confined to her room, especially after a bowel movement or urination.

Last Thursday a discharge of small quantity of dark blood with a small clot. Yesterday severe pain with discharges of more blood.

Examination.—Large cystic tumor reaching half-way to umbilicus and mainly on left side of abdomen, filling Douglas' pouch and pushing the womb close against the symphysis. Not so sensitive nor so adherent as one would expect from an extra-uterine pregnancy, but perfectly possible to be so; perhaps an adherent inflamed ovarian cyst; possibly a retroverted womb, twisted on the cervix, adherent and pregnant.

Clinical diagnosis.—Extruterine pregnancy (?); ovarian cyst and intrauterine pregnancy (?); retroflexed, fixed, pregnant uterus (?).

Operation.—Dermoid cyst on left side, size of cocoanut, with two large bunches of hair in it. One twist of the pedicle. Intrauterine pregnancy. Afebrile convalescence; pregnancy uninterrupted.

1831 SPRUCE STREET.

PUERPERAL TETANUS.¹

BY

A. F. A. KING, M.D.,

Professor of Obstetrics, etc., Medical Department Columbian University, Washington, D. C., and in the University of Vermont; one of the Obstetricians to the Columbia Lying-in Hospital, Washington, D. C.

THE following case of puerperal tetanus is presented to the Society, not on account of any special features of interest that it

¹ Read before the Washington Obstetrical and Gynecological Society, December 7th, 1894.

exhibits, but chiefly as a simple addition to the record of these very rare cases, and to invite discussion upon this extremely fatal and as yet inexplicable disease.

A. J., a mulatto domestic, aged 23 years, married, IIIpara, was admitted to the Columbia Lying-in Hospital, Washington, D. C., at 11:30 A.M. October 8th, 1893. Her previous labors had been normal so far as could be learned. One child alive, one dead, and one a miscarriage near the seventh month. The patient *said* she had menstruated regularly every month. The last period began six days ago (October 2d), and continued until October 7th, when it was profuse and accompanied with severe "cramps." Then she went to a "*doctor's office*." The "doctor" told her she had "*ulceration of the womb*" and "operated" upon her. This was on Saturday night, the day before admission to the hospital. During the night she had considerable bleeding, and early on the morning of October 8th the flow became very profuse. Another physician, in whose house the woman was employed as a domestic servant, tamponed the vagina and sent the patient to the hospital.

The record of the resident physician states that, on admission, the abdomen was tender and tympanitic. The external os uteri was soft and dilated, easily admitting a finger. The os internum also dilated. There was a little colostrum in the breasts. The urine contained no albumin; its specific gravity 1020; color cloudy; acid reaction. Her temperature was 101° and pulse 132. Treatment: Rest in bed; an enema, and quinine sulphas gr. v., every three hours.

October 9th: Very little discharge during the night. Complaints of abdominal pain and tenderness. Speculum examination revealed a strip of surface, half an inch wide and three-fourths of the circumference of the cervix, that appeared to have been recently canterized, and the cervix itself appeared to have been recently dilated. There was a grayish discharge from the uterus, having an offensive odor. The womb was washed out with a carbolic solution (1:100), and a quantity of brownish offensive material with some shreds brought away; a strip of iodoform gauze placed in cervix for drainage, and vagina was well dusted with iodoform and boracic acid powder (1:7). In the evening the abdominal pain was slight and the discharge had very little odor. The evening temperature 102°. During the 10th, 11th, and 12th of October the patient did well; her

temperature remained between 99° and 100°. The vaginal and uterine douches were repeated.

On October 12th the patient said "she never felt better" and asked to be allowed to get up. October 13th: In the morning complained of slight headache, and in the evening of slight sore throat. During last night a heavy storm occurred, and the wind broke one pane of glass from a window near the head of the patient's bed, which allowed a draught of cool air to blow upon her.

October 14th: Complained of stiff neck and some difficulty in swallowing; very nervous; temperature 100.3°. She had quiniæ sulphas and phenacetin, ãã gr. v. every four hours. Took plenty of milk, but no solid food. In the evening complained of being unable to open her mouth more than half an inch; very restless and nervous. At night she had morph. sulph. gr. $\frac{1}{4}$ with atropinæ sulph. gr. $\frac{1}{150}$ hypodermatically.

October 15th: Slept but little last night; pain in throat; was able to swallow milk. Can open mouth only about one-quarter of an inch. Marked spasm of muscles of neck and jaw, extending in the evening to those of the back and lower extremities. Morphia and atropia repeated.

In addition she was ordered an enema containing chloral hydrate gr. xxx. with mist. asafetida and milk, to be repeated every two or three hours, and anesthesia with ether when awake and suffering pain.

October 16th: Symptoms about the same. After a consultation by the hospital staff she was ordered chloral hydrate and potassium bromide ãã 3 ss., tincture of opium gtt. xx. with milk, for an enema, every two hours, also vaginal douches of mercuric bichloride night and morning. The enemata were retained during the afternoon; between 9 P.M. and 2 A.M. had three large movements from the bowels.

October 17th: General convulsions began, lasting several seconds, during which the patient became pulseless, deeply cyanotic, with widely dilated pupils, etc. After cessation of the spasms the pulse returned and the pupils became contracted almost "to pin points." The same treatment was continued, with the addition, later on, of whiskey and nitroglycerin hypodermatically to sustain the failing circulation. She also had enemata of peptonized milk with chloral, bromide, opium, and whiskey. The uterus and vagina were kept clean from time to time by

antiseptic washes, ether being given during their administration to prevent spasm and relieve pain.

No remedies appeared to be of any avail. Death occurred at 10 p.m. October 17th, four days after the tetanic symptoms began. During the last two days of life the temperature rose to 103° , 104° , 105° , 106° in the axilla. In the rectum it was 110° at the time of death. The mind of the patient was for the most part clear; she suffered intensely, always crying out with the pain when not relieved by medicines.

Before death she corrected her former statement as to having been "regular" every month before admission, and acknowledged that she had been operated upon in the "doctor's office" first mentioned for the purpose of producing abortion.

Several of the alleged *causes* of puerperal tetanus seemed to have coexisted in this case—viz., traumatic injury to the uterus, abortion, the vaginal plug, retention of offensive (septic) matters in the uterus, and exposure to a current of cold air.

Eight years ago Dr. Thomas C. Smith presented to this Society the history of a case of puerperal tetanus which he had seen in consultation with the late Dr. Naylor,¹ together with more or less complete accounts of thirteen cases previously reported by other practitioners. In concluding his paper Dr. Smith accentuated the importance of preventing the disease by avoiding its alleged causes, and lamented the "eminently unsatisfactory" results of treatment. Of the cases referred to by him only three recovered. Of the twenty-seven cases collated long ago by Sir James Simpson only five recovered. So far as I can learn up to the present date, we have still to lament the impotence of treatment, and can scarcely do more, even now, than fall back to the statement of Dr. Smith that the chief hope of saving women in this disastrous complication is by protecting them from its causes rather than by remedies for its cure.

Perhaps the most elaborate and instructive paper on this subject of recent date is that of Dr. Henry J. Garrigues, of New York.² In this paper Dr. Garrigues presents a tabulated record of fifty-seven cases of puerperal tetanus, twenty-five of them occurring after abortion and thirty-two after parturition. He adds to these a record of ten cases of "tetanoid contractions" during pregnancy and one case during lactation.

¹ AMERICAN JOURNAL OF OBSTETRICS, vol. xx., April, 1887.

² Ibid., October, 1882, pp. 769-812.

Of the twenty-five tetanus cases following *abortion* twenty-three were fatal; of the thirty-two cases following *parturition* twenty-seven died. Thus of the entire fifty-seven cases only seven recovered. Of the ten cases of tetanoid contractions during pregnancy three died, five recovered, and in two the result is not stated. The one case of tetany during lactation recovered. In the cases that recovered the remedies employed seem to have been so various as to leave a doubt with regard to their efficacy, and we can scarcely glean from them any systematic plan for the management of the disease in future. In some of the successful cases phlebotomy and leeches were used. One is alleged to have been saved by a cold bath. Large doses of quinine, calomel, tartar emetic ointment, blisters, poultices, and a turpentine enema were among the remedies also employed in the cases that got well. Conjoined with these, narcotics and antispasmodics—opium, cannabis indica, belladonna, chloroform, valerian, musk, tartar emetic, and warm baths—were also used. Dr. Garrigues himself, very properly, cautions his readers to remember that similar remedies were used in the cases which proved fatal. It would seem, therefore, that we have no more reliable means of coping with puerperal tetanus than the surgeon has with the ordinary non-puerperal cases that fall to his care. This conclusion acquires further corroboration from the later statements of Dr. Garrigues in his recent work on “Diseases of Women” (1894), where, in speaking of tetanus as a complication following operations upon the uterus for fibroid tumors (page 482), he regards the treatment as “probably hopeless” and recommends “bromide of potassium, chloral hydrate, and curare.” And again (page 608), in referring to tetanus as a complication following operations for ovarian disease, he regards the prognosis as “very bad” and mentions as remedies “chloroform, chloral, and curare.” It is the same old story of a perfunctory administration of palliative remedies without any basis for systematic cure. Not until we have extended our knowledge with regard to the etiology, pathology, and morbid anatomy of tetanus in general can we, perhaps, hope to attain anything like a rational and successful method of treating puerperal tetanus. Possibly the avenue of success lies in the direction of the work of Brieger with tetanus microbes and their toxic ptomaines. The future may provide us with an antitoxine for tetanus, as it has (?) done for diphtheria; but at present we can do no more with puerpe-

ral cases than to clean out the uterus with the finger or curette, render its cavity antiseptically clean, feed the patient, palliate her symptoms, and remove all causes of the disease.

1315 MASSACHUSETTS AVENUE.

BACTERIOLOGY AND TREATMENT OF PUERPERAL TETANUS.¹

BY

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(With three illustrations.)

THE organism of tetanus is termed the "bacillus of Nicolaier-Kitasato."

Origin.—Nicolaier found this bacillus in the pus of a wound in a person who died of tetanus. He described it in 1884.

Kitasato was the first to isolate and cultivate this germ, in 1889. It is a delicate, slender rod, which assumes, if a spore form, the characteristic shape of a drumstick. The spore is not always found in the pus of a wound.

By skilful experiments it has been proved that the microbe alone does not produce the disease, but that the tetanic convulsions are caused by the "toxine tetanique," which is very adherent to the spores.

If cultures of the spores of tetanus be filtered and washed in immense quantities of water in order to separate the toxine from the spores, and then these spores thus cleansed be inoculated into the most susceptible animals—*e.g.*, horses, mules, sheep, cows, mice, rabbits, guinea-pigs—no manifestation of tetanus takes place; but if the toxine be injected minus the spores it will suffice to kill the animal even in the minutest dose.

The spores, if injected alone and free from toxine, are at once surrounded and digested by the leucocytes, or phagocytes, as the beautiful experiments of Metchnikoff, Pasteur's assistant, have shown.

Herbivora, although very susceptible to the disease if the germ be introduced through a wound, can take myriads of the

¹ Read before the Washington Obstetrical and Gynecological Society, December 7th, 1894.

bacilli of tetanus into the alimentary canal without the least injury.

The microbe, being anaërobic, develops beautifully in the digestive tract, and is ejected in the excrementitious matter, thus infecting the soil.

A number of cases of puerperal tetanus have been observed in cows, and tetanus neonatorum is not a rare occurrence in sheep, the umbilicus being invariably the focus of infection.

Veterinarians are well acquainted with tetanus following the operation of castration.

The course of tetanus is more or less rapid. In the horse it is apt to take an acute form, while the bovine race are known to

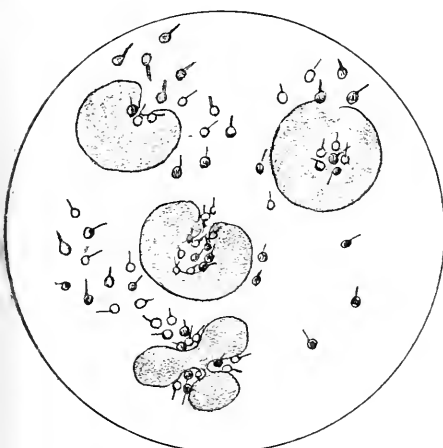


FIG. 1.—Phagocytosis.

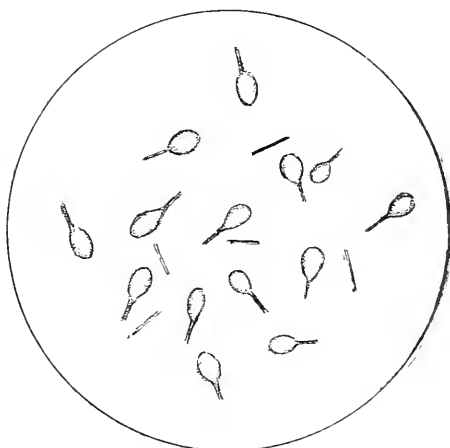


FIG. 2.—Chiefly spores.

react more slowly. Recoveries are more frequent in animals than in the human species.

In man tetanus can almost always be traced to the source of infection. Ordinarily the clinical history shows that a wound, no matter how small, has been soiled by earth, manure, dust, or by some foreign body, as wood, glass, metal, or stone which has been in contact with the soil. Unfortunately a number of cases are due to want of cleanliness on the part of the surgeons. A Belgian surgeon, M. Thiriar, has published a series of these so-called cases of "operative tetanus."

In man the first symptom usually noticed is that of trismus, soon to be followed by opisthotonos, emprosthotonos, or pleurothotonos.

During the paroxysm the temperature rises to 41° – 42° C., and the patient dies in asphyxia and hyperpyrexia, which latter advances post mortem to 43° – 44° C.

At the autopsy *no* characteristic lesion is *ever* found *outside* the point of inoculation, which is sometimes inflamed and purulent and covered with a membranous exudate. The adjacent tissues are occasionally the seat of an edematous infiltration. These latter lesions, being constantly found, might be considered as the ⁷essential pathogenic condition of tetanus.

Microscopic examination of the pus taken from the wound will reveal, among various different organisms of suppuration,

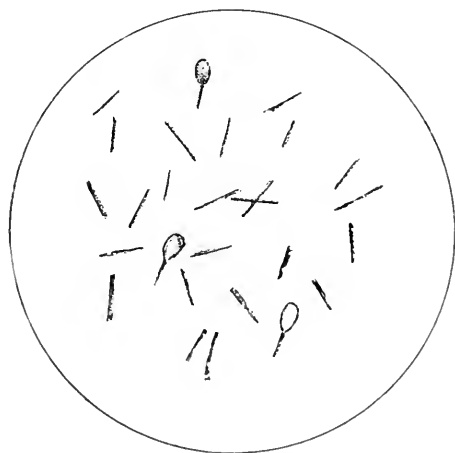


FIG. 3.—Chiefly rods.

the bacilli of tetanus, mostly in both forms, namely as rods and spores.

Cultures are not easily obtained, as the germ is anaërobic—*i.e.*, it can only be cultivated *in vacuo* or in the presence of an inert gas such as hydrogen. Bonillon, gelatin, agar, and coagulated serum are good culture media, while potato is useless.

While the most skilful manipulations are required to obtain a good culture medium, it has been proved that earth filled with tetanic germs keeps its virulence for a very long time.

Vaillard and Vincent have shown that spores of tetanus will retain their vitality after an exposure lasting six to eight hours to a temperature of 80° – 90° C. The *toxine*, however, is destroyed by a temperature as low as 65° C.

Exposed to the sunlight it will lose its vitality. If evaporated

in vacuo the toxic liquid leaves a brown, amorphous residue which is extremely toxic. This residue is insoluble in alcohol and dialyzes with a characteristic slowness.

The toxine of tetanus, if precipitated by calcium phosphate or alum, adheres very closely to it, and this precipitate is found to be very toxic. All these characteristics prove that the tetanic poison has nothing in common with ptomaines or alkaloids, which *are not* affected by exposure to sunlight, require a much higher temperature than 65° C. in order to effect their neutralization, and are rendered innocuous by being precipitated. While it has nothing in common with ptomaines or alkaloids, it *does* bear a striking analogy to diastase and the venoms.

Like the diastase, the tetanic poison is destroyed by a comparatively low temperature and by the rays of the sun; and, like diastase also, it is precipitated by alcohol and this precipitate retains its virulence.

Like venoms, it acts in infinitesimal doses and yet has no effect whatever if introduced by the digestive tract.

Various experiments have been tried with the view of producing immunity from tetanus.

Kitasato and Brieger were the first to succeed.

The serum of the blood of an animal affected with tetanus, if injected into another animal, will produce immunity against the disease. At the Pasteur Institute the serum is mixed with Gram's liquid¹ and then injected. The Gram's liquid strengthens the action of the serum in procuring immunity.

The first day three cubic centimetres of serum and one cubic centimetre of Gram's liquid are injected; the fifth day five cubic centimetres of serum and two cubic centimetres of Gram's liquid are injected; the ninth day twelve cubic centimetres of serum and three cubic centimetres of Gram's liquid are injected.

After this treatment the animal will be absolutely immune from tetanus, even after the injection of the largest dose of the toxine.

At the Val de Grace laboratory there is a rabbit which has been rendered immune to the injection of any amount of the toxine; one-millionth part of a cubic centimetre of this rabbit's serum would suffice to kill a horse.

Antitoxine is found in the milk of inoculated animals. Experiments upon mice have shown that the young ones become

¹ Iodine, 1 gramme; kalium, 2 grammes; aqua destillata, 300 grammes.

absolutely immune from nursing their mother, if she has previously been inoculated with serum and herself rendered immune.

If chickens be inoculated their eggs will contain the antitoxine in the yolk while the albumen remains perfectly free from it.

Scientific and logical treatment of tetanus.—Remove and cleanse the focus of infection and inject the antitoxine.

Four to six cubic centimetres of the antitoxine will suffice to save the life of a human being.

Very large quantities of antitoxine can be injected without disagreeable results; occasionally a mild form of urticaria has been noticed.

Carl Schröder in his text book on gynecology speaks of a case of tetanus, reported by Dr. Harry Thompson, occurring at Columbia Hospital, and attributes it to the use of a tent.¹

Winckel, who in his work on obstetrics is otherwise so exhaustive, devotes only a few lines to the subject of puerperal tetanus, and recognizes as the cause the bacillus of Nicolaier introduced into a wound of the genitalia, and says that the greater frequency of puerperal tetanus in hot climates may be attributed to the want of cleanliness on the part of the attendants.

Statistics have shown that it is more prevalent in the colored race than in the white, and more frequent in hot than in cold climates. It is endemic in Louisiana, some parts of Bavaria, India, and South America.

Waring, in the *Indian Medical Journal*, reports two hundred and thirty-two cases of puerperal tetanus in three years. This is not to be wondered at from the custom of women being delivered on the floor of mud huts. Hundreds of cases of tetanus neonatorum can be directly traced in India to the custom of the natives of dressing the umbilical cord of the new-born with earth. Tetanus has never been found in virgin soil. Certain tribes of South American Indians are well aware of the toxic properties of the earth, although ignoring the reason of its virulent properties. They smear their arrow heads with a mixture of saliva and earth, and await a fatal result with assurance.

I thought it would be well to report several characteristic cases from the literature of different countries.

The first case on record dates from over a century ago, 1792. It was reported by Currie in the *Memoirs of the Medical Society of London*.

¹ Columbia Hospital Reports, Washington, D. C., 1873, p. 102.

Sir J. Y. Simpson¹ reports two cases of puerperal tetanus with recovery. One was treated by spirits of turpentine, the other by cold baths.

In 1880 Baumgärtel² mentions a case following abortion.

In 1881 Werner³ reports a case following normal labor in an Xpara.

In 1884 Arnold⁴ reports a well-marked case of puerperal tetanus, and lays stress upon the fact that in a neighboring house a child had previously died of trismus.

In the same year, 1884,⁵ Scheef describes a case from the Poliklinik of Tübingen. This was a well-marked case of puerperal tetanus. Some weeks before the death of this patient a child had died of tetanus in the same house and on the same floor.

In 1887 Boarman reports a case in the *Journal of the American Medical Association*, page 522. This case followed embryotomy.

Fränkel⁶ mentions a case of puerperal tetanus which followed the rupture of varicose veins.

In 1889 Chaumemesse et Vidal⁷ reported that out of twenty-one well-authenticated cases since the discovery of the microbe—*i.e.*, in five years—they had only succeeded in obtaining the bacillus in one case. It is a difficult microbe to isolate.

Gautier⁸ reports seventy-four cases.

In 1890 U. E. Wiercinsky⁹ reports a case of puerperal tetanus. The case was fatal; no post mortem.

In 1891 Heinricius, of Helsingfors,¹⁰ had a well-marked case of puerperal tetanus with a fatal issue. The etiology of this might prove of interest: On December 20th, 1890, a child 6 days old died of tetanus neonatorum. There was a wound of one and a half centimetres in diameter, purulent and edematous. The midwife who took care of the confinement case in question made several vaginal examinations, the first on January 1st, 1891. Symptoms of tetanus supervened on January 7th,

¹ Edinburgh Medical Journal, xix., p. 34.

² Zeitschrift für Wundärzte-Geburtshülfe, 1880, pp. 51-53.

³ Ibid., 1881, pp. 253-5.

⁴ Med. Correspondenceblatt, Württemberg Aerzte, 1884, liv., pp. 209-212.

⁵ Ibid., 1884, No. 24, p. 186.

⁶ Spiegelberg's "Lehrbuch der Geburtshülfe."

⁷ Bulletin médicale, lxxiv.

⁸ Revue méd. de la Suisse, 1889, N. 12.

⁹ Centralblatt für Gyn., No. 14, 249.

¹⁰ Ibid., No. 33, p. 673, 1891.

and death took place on January 10th. In this case it was evident that the midwife carried the infection, and that she could not have effectually washed her hands from December 20th to January 1st.

In 1809 Vinay¹ found one hundred and six cases in the literature.

Allison Maxwell² read a paper on June 5th, 1894, at the fifth annual meeting of the American Medical Society at San Francisco, relating the case of a woman in Indianapolis who was delivered by her husband, a laboring man. She had well-marked tetanus, of which she subsequently died. Post-mortem revealed a small piece of placenta the size of a quarter of a dollar, to which he attributed the affection. His treatment was morphia and chloral hydrate rectally.

The case reported in the most scientific way is that of Heyse.³ This was a case with all the symptoms of puerperal tetanus and subsequent death.

During the lifetime of this patient, while affected with tetanus, bacteriological examinations of the lochial discharge were made with negative result. On the post-mortem examination the uterus was removed and carefully examined for the exact focus of infection. For this purpose the lochial discharge was swabbed off, by means of sterilized cotton, from various parts of the uterine cavity, particularly the placental site. Cultures and inoculations of these scrapings were made, revealing only the ordinary bacilli of putrefaction. However, the plug of sterilized cotton which had been put into the cervix gave exceedingly satisfactory results. Inoculations made, with the scrapings from this area, on five mice and one guinea-pig produced characteristic tetanus and death in from seventy to ninety hours. Pure cultures obtained from the wounds of these inoculated animals showed the characteristic bacilli and spores.

Although Heyse had proved in the most satisfactory manner that the etiological factor in this particular case was undoubtedly the bacillus of tetanus, he did not stop there, but went further to search for the source of the contamination.

The house in which this patient was delivered was carefully examined, the dust and dirt being collected from the ceiling,

¹ Gazette des Hôpitaux, 1891, No. 152.

² Jour. Am. Med. Ass'n, Chicago, August 11th, 1894, p. 224.

³ Deutsche Med. Wochenschrift, No. 14, 1894, p. 318.

walls, and floor, and particularly the thick masses of dirt in the cracks of the floor, which had accumulated for years, in order to be submitted to the microscopical test. The dust proved negative, but the dirt from the cracks, when inoculated into mice, produced characteristic tetanus followed by death. Mixed cultures were obtained from the wounds, from which, later on, the tetanus bacillus could be isolated.

I wish to acknowledge my indebtedness for most valued assistance to Dr. Sofie A. Nordhoff, who has just returned from a course of prolonged study in the Pasteur Institute, and who kindly exhibited to the Society the microbes of tetanus isolated by herself in Paris at the Pasteur Institute.

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VASCULAR NEUROSES IN WOMEN.

BY

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(With plate.)

THE vascular neuroses are the vasomotor or those of the peripheral circulation. They may be general or local, external or internal—external, as in a morbid blush, or internal, as in a globus hystericus.

Vasomotor neuroses are exceedingly complex phenomena, the causes and results of which are often difficult of elucidation. In giving them consideration one should remember accurately the anatomy and physiology of the parts involved in their production.

Among the more marked of the general vascular neuroses is the hysterical or nervous fever mentioned below, usually resulting from some uterine or digestive difficulty. General nervous chill sarea also vasomotor disorder dependent upon some local irritation, either cerebral, abdominal, or pelvic. Febrile conditions dependent on uterine disease are very common at the menopause; they often simulate malarial fevers, but are not benefited by quinine. Treatment directed to the uterine trouble

often gives relief. In some cases it has its origin in abnormalities of the menstrual flow.

Among the local vascular neuroses we find flushes, morbid blushing, extreme redness of the nose and malar prominences, burnings of the palms of the hands, soles of the feet, top of the head, side of the chest, erythematous eruptions, hemorrhages, sweats—sometimes unilateral or confined to the hands and feet—coldness of the extremities, dryness of the body.

I have seen a number of cases of morbid flushing or blushing in my practice, and a few of them I considered of sufficient importance to justify me in taking notes of them. In looking up the subject in medical literature I could find but comparatively little bearing upon it. Dr. Harry Campbell, of London, published a rather extensive monograph upon this subject in August, 1890, and to it I am indebted for much information.

The ganglionic system through the vasomotor nerves which control the circulation, and through which it transmits irritations in the same way as the cerebro-spinal system, is the important factor in these neuroses. Pallor and flushings show the contraction or dilatation of the vessels through this influence. That the mind is a great factor in many of these states, or that they are really psychoses, is shown by the condition of excessive or morbid blushing.

Sometimes the irritation reflected is general, as in conditions of neurotic fever or when nervous chills occur. It is said that in some cases of neurotic fever the temperature has even risen to over 110° F. Mental and nervous excitement will frequently run the temperature up to 104° , and this temperature will subside quickly without any treatment other than the removal of the original cause of excitement. Besides being reflected generally, it is sometimes reflected locally or partially, as in cases of palsy of the extremities or of the face; or sometimes the disturbance is more marked, as is seen in cases of flushings of the abdomen.

Morbid flushing at the menopause is very frequent as a result of genital disease, but in very many cases I am convinced chronic gastro-intestinal catarrh is a still more important factor in lowering the tone of the nervous system. In these cases the gastro-intestinal canal needs treatment more often than the uterus. In cases of morbid flushing salivation is frequently present. This is, of course, a glandular neurosis, and here shows the

interdependence and identity of the different forms. It must not be confounded with salivation from the too free administration of mercurials. The latter may be due to the teeth containing many fillings of cheap mercurial amalgam instead of gold or silver. Dentists claim that this is a not uncommon cause of mercurial salivation, and it should always be borne in mind when this symptom is observed. A flushed and congested face with a red and swollen nose is a frequent gastro-intestinal vascular neurosis or dermatosis. The so-called "chronic erysipelas" of the face is a vascular dermatosis and comes under the head of dermal neuroses. Excessive perspirations are glandular neuroses, but they are of vasomotor origin. It is very difficult to separate and classify these neuroses, as they are so commonly found associated in the same patient, and they are also so intimately interconnected.

The red nose and flushed cheeks due to reflex vasomotor disorder are a source of great mortification and mental distress to those so affected. It is a most disagreeable affliction, especially to women. It has been generally considered by the ignorant as a sign of alcoholic indulgence; more often it is due to gluttony and gastro-intestinal disease from overfeeding and high living. Particularly in small provincial towns many persons have been condemned as secret drinkers when they were simply suffering from a gastro-intestinal catarrh, secondary possibly to a post-nasal catarrh, which was unfortunately manifested in a disordered state of the vasomotor nerves of the face. Bad cooking and general unhygienic living are the usual causes of this condition in women. As an instance of the way the ignorant look at it, I may quote a remark in this connection which I overheard a rough fellow make: "If they don't drink they should take in their sign." That the ignorance is not all confined to the poorer classes is shown by the dietaries of those in higher life. Extreme coldness of the extremities is a very common vascular neurosis due to abdominal or pelvic disease, and indigestion is fully as frequent a factor in its causation as uterine congestions.

There are also patients who suffer from extreme pallor of the face whenever excitement causes the heart to beat furiously. Some of these local vascular neuroses become chronic and exist as dermatoses, like acne rosacea and chronic urticaria. Upon the disappearance of the local disease these reflex disorders cease to exist.

The flushed appearance is, in many of these cases, due to a vasomotor paralysis. Some of these patients will frequently have the upper portion of the body in a constant flush, while the feet will be cold as ice; insomnia is here often present, sometimes of such a severe type as to lead to mild forms of mental aberration. Vasomotor paralysis causing burning sensations at the vertex and occiput is a very common symptom of uterine or ovarian disease. Coldness of the extremities is not only present in disorders of the uterus and anemic conditions, but is a common symptom of other abdominal difficulties, such as indigestion and "biliousness." Very many patients with indigestion have numbness and coldness of the left side of the body, often very marked, the heel and the tips of the toes and fingers on the left side being sometimes excessively cold. Even the novelists note the vasomotor changes dependent upon mental disturbances when they speak of a heroine's face blanching and of her "shivering and becoming cold with nervous excitement."

In hemicrania and similar vasomotor neuroses the arteries may undergo spasmodic constriction, thus shutting off the blood supply and rendering the parts pale and anemic; or there may be dilatation of the vessels with hyperemia of the part. Sometimes these conditions alternate: there is constriction followed by dilatation, and a consequent blanching followed by a suffusion of the part affected. These cold sensations and hot flushes of the skin are most commonly seen at the menopause when uterine or digestive disease is present, but may occur at any time. Either of these two conditions continuing for a considerable space of time results in marked nutritive disturbance of the parts involved. In both forms the nutrition is probably interfered with. In the anemic type the parts are pale and anesthesia is present. In the hyperemic type there is warmth and redness of the part with some slight hyperesthesia; the glands involved are stimulated and there is increased secretion. Profuse perspiration may, however, take place in this disorder without any other symptoms being apparent to the observer. Irritations of the plexuses and filaments of the sympathetic and cerebro-spinal systems from disease in the abdominal or pelvic cavities start up many vasomotor disturbances in distant parts of the body. The numbness and tingling present in the left arm in attacks of angina pectoris is a good example of a reflex vasomotor neurosis. Vasomotor neuroses of this spasmodic



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

CASES OF MORBID BLUSHING.

variety may also depend upon ovarian irritation. If the causative lesion is central, as in a case of endometritis, we may find both the lower extremities affected by a change in the vascular supply and in the sensation of the parts, frequently causing reflex paraplegia.

CASE I.—Mrs. T., æt. 76, has had attacks of angina pectoris. Her left arm is considerably weaker than the right and at times has pain, particularly in the centre of the palm and the front of the elbow joint, with numbness and tingling of the fingers; the arm is cold, but its nutrition does not seem to be impaired. Only by the most careful examination can the pulsation be detected in the radial artery at the left wrist, and it is impossible to count it; the pulse in the right radial is very strong. When she was very much younger, she says, her physician never noted any special difference between the pulsations of the two radials, or, if he did, which is more likely, he never spoke of it. She had suffered since girlhood with cardiac weakness. In some patients this condition of spasmodic contraction of the blood vessels is temporary when dependent upon abdominal or pelvic disease, and disappears readily on removal of the causative lesion, the pulse in both arms, and probably in both feet, in many cases becoming equal in strength.

Morbid flushing as a vasomotor disturbance is due oftentimes to want of tone in the surface vessels, which thus causes either great pallor or flushing of the part. It is this want of tone also in the deeper vessels which probably causes the congestive and anemic types of neuralgic headaches, and there are, I believe, undoubtedly extreme states of pallor or flushing of the cerebral tissue, the same as we frequently see on the surface of the skin. Areas of pallor in the brain may give rise to symptoms like anemic roaring, snappings, whistlings, etc. These patients frequently have anemia of all the extremities, suffering intensely from cold hands and feet. There can be no doubt that the intracranial blood pressure is to a degree under the control of the sympathetic nervous system, the same as the blood supply in other parts of the body. In exhibiting the sympathetic system and its connections we need simply outline the circulatory apparatus, as in this department it manifests its greatest changes. Excessive emotion, shown by morbid blushing, is due in many cases to a weakened condition of the sympathetic nerves and to anemia resulting from fatigue, insufficient sleep, and exhaustion.

Morbid blushing, although not, strictly speaking, a serious disorder, is, to say the least, extremely disagreeable to the victim. It is simply the manifestation of a weakness in the nervous system. It is not the symptom of blushing which needs treatment, but the general condition which is at the basis of the disorder. Probably the most prominent exciting cause is self-consciousness, either by introspection or by the attention being drawn to the external portions of the body while under examination by others.

When a modest individual of extremely nervous temperament is in company with a number of persons, if she imagines that the people around her are regarding her critically and are entertaining rather a disparaging opinion of her, she is very liable to manifest her abnormal self-consciousness by blushing, or even by becoming embarrassed in her conversation, and stammering. Shy and nervous persons blush readily when attention or remarks are directed to their personal appearance. Women are said to suffer more frequently than men from this disorder; but there are many men whose nervous system is disordered, either congenitally or by exhausting mental or physical work, who are much given to blushing and other manifestations of nervous weakness. The young blush much more pronouncedly than those who are older, not only on account of the texture of the skin being more delicate and healthful, but from inexperience and on account of their condition of hypersensitiveness not having as yet been blunted by continued contact with the world. Blushing is generally confined to the face, on account of its extreme vascularity, and therefore, having greater supply of vasomotor nerves, emotional disturbances manifest themselves more prominently in that part, the face being the portion of the body most exposed to view and upon which most attention is concentrated in looking for recognition or in studying character or discerning beauty or homeliness. The self-attention thus given the face makes it abnormally sensitive and the vessels extremely prone to dilate, with blushing as a result.

It is said, among nations where other parts of the body are exposed to view, that blushing is by no means confined to the face, but is much more widely diffused.

Many people blush more readily before strangers than before acquaintances, though sometimes the opposite is the case. In some individuals the blushing takes place at regular hours, and

with many it is so severe that it actually prevents them from going into society. Blushing rarely, if ever, occurs in solitude or in darkness; it occurs only when observation is directed toward the personal appearance, and then results from embarrassment and self-consciousness. Anything which lowers the tone of the nervous system tends to the development of functional nervous disorders, of which excessive self-consciousness is a type. Many cultivated and scientific men are prone to blush inordinately from humility and diffidence, having a low opinion of their own ability, while the ignorant egotist is never known to blush. That colored people blush has been proven by scars on the face changing color under conditions which would induce blushing in those who are white. Blondes exhibit a tendency to blushing, when the skin is healthy, much more vividly than do brunettes with sallow skins, although it is quite probable that dark-haired ladies blush with fully as great frequency as those who are light. It is more common in those of delicate nervous organizations, while those of coarse natures are very little affected by it.

In attacks of excessive self-attention, where there is a difficulty in concentrating the thoughts, the one idea becomes unduly prominent and morbid blushing results. Some people blush on the slightest occasion. A case is noted of a telephone clerk who blushes even conversing through the telephone. Some men cannot go into shops where there are women without blushing intensely. Many clerks are victims of blushing, and, as a result, suffer much mental distress while serving customers. Teachers blush before their pupils, and men before their wives. Lovers blush frequently and painfully in the presence of their future partners. Lawyers are about the only class to whom this annoying affection is unknown. A grizzled old sea captain, who passed many years in command of passenger ships crossing the Atlantic, invariably became much embarrassed and blushed hotly when addressed by young and handsome lady passengers. Blushing is much more frequent in old men than in old women.

Predisposition to blushing, like other peculiarities in individuals, is frequently inherited. Darwin calls attention to a case of inherited blushing which came under the observation of Sir James Paget. While conversing with a young girl "a big splash appeared, first on one cheek, and then other splashes variously scattered over the face and neck. He subsequently asked the mother whether her daughter always blushed in this peculiar

way, and was answered, 'Yes; she takes after me.' Sir James Paget then perceived that by asking this question he had caused the mother to blush, and she exhibited the same peculiarity as her daughter."

Many of these inordinate blushers are timid and melancholic, sometimes to a degree bordering upon a mild form of mental aberration. They seek solitude and are excessively sensitive about people they meet who they may fancy are criticising their personal appearance. For this reason they are so shy that they dislike meeting friends or strangers in the street. Many of the victims of this disorder, if relating an incident or anecdote, will often lose the thread of the story by their concern as to what their auditors may be thinking of them.

The best cure for this condition of excessive self-consciousness is a constant and free intermingling with others in the work of life. Solitude is a great factor in the production of self-consciousness. Poverty and worry are also elements in the causation of excessive shyness.

The preventive treatment of this condition should be begun in childhood, by sending the children to large public schools where they will be allowed a considerable amount of freedom from restraint and come in contact with a coarser and rougher element. This will tend to make them bolder and more self-reliant. Children who seem to be afflicted with shyness and inherit a morbidly sensitive nervous disposition should at a very early age be instructed in elocution and encouraged, or in fact compelled, to frequently give recitations before their classmates. It is also well to have them taught music and singing, the exhibition of which accomplishments before friends or classmates will materially tend to remove the predisposition to shyness when present. It is said that many coquettes have the power of voluntary blushing. This is probably true in some instances, as the smaller blood vessels of the face may probably be influenced through the nervous system to a certain extent. Blushing often depends on certain emotional influences. When these influences are but slight the blushing may be extremely evanescent; when the emotional changes are very marked the blushing may be very intense. Blushing is the external manifestation of the internal emotional perturbation, and its extent is generally in proportion thereto. Some women, instead of blushing when suffering these distressing emotional disturbances, become absolutely

pale instead. The blush may be preceded by very little disturbance, or it may be ushered in by a warm glow over the whole body. In severe cases the mental confusion is very marked, the heart throbs violently, there is a sensation of suffocation, and the breath becomes short. There is a peculiar sensation at the epigastrium, often followed by the condition of globus hystericus or constriction of the throat.

Palpitation of the heart is a very common condition immediately preceding the act of blushing. Many blushers experience a feeling of dread as part of the emotional state. The dread, breathlessness, speechlessness, and globus hystericus are all depressing emotions and are often accompaniments, in a greater or less degree, of the actual blush.

When the blushing is of a severe type there is always mental confusion present. In a large number of cases the individual completely loses the power of thought for the time being. The mind is completely paralyzed, and, in popular language, she is "covered with confusion," or, in slang parlance, "rattled." There is an instinctive desire for self-concealment. The blusher either averts the head or looks downward. The expression, "I wished I could have sunk through the floor," which we have heard used, aptly expresses the mental condition of the patient at this time. The overworked cultured classes are, as a rule, more self-conscious than the uneducated, but they have more power to restrain its manifestations. They very rarely meet your gaze directly, and while conversing habitually look at some adjacent object, merely bestowing occasional side glances on the person with whom they are conversing.

It is almost impossible to compel any of the lower animals to look one in the face and eyes even for a very short space of time. Especially is this the case with the dog, whose head you cannot possibly hold still for a few seconds while looking into his eyes.

In some cases of very violent blushing the face becomes bathed in perspiration. In some women it is so severe that it is followed by a well-marked rash which not only covers the face, chest, and neck, but may extend to the hands. The blush is often followed by pallor of the face; this is due to constriction of the blood vessels—a reaction following their dilatation. Morbid blushing occurs most frequently in women exhausted by anxiety, the eating of improperly cooked foods, bad air, and overwork. The blood of these patients is usually anemic. When

a person has once suffered from this disorder he is liable to have subsequent attacks, as the nervous system is highly impressionable, and the condition once well developed is liable to be perpetuated by slight influences, such as disordered digestion.

Irritations arising in the digestive organs are probably the chief causes of the nervous depression which accompanies these conditions. The impure blood resulting from the bad digestion produces most deleterious influences on the nervous system, thus starting up a great variety of functional disturbances, of which morbid blushing is a good type. Many of these tendencies to weakness of the digestive and nervous system are inherited. An important factor, therefore, in the treatment of these conditions is the enrichment and purification of the blood by dietetic and hygienic means. As already stated, education is a great factor in the treatment of hereditary nervous weaknesses, and this educational treatment should be begun at a very early age when the first demonstrations of excessive shyness, which is part of the nervous weakness, are noticed. Otherwise it is liable to increase in severity until it becomes an actual disease.

Skilful care and treatment will do much toward removing this condition of weakness. Habits of solitude and self-communing should be discouraged and the child should be forced to mingle freely with other children, which has a very wholesome influence and tends greatly to the modification of any peculiarities of disposition. In the adult the treatment is more difficult. Everything which contributes to elevate the tone of the nervous system should be adopted. Nothing is more important in these cases than the improvement of the general nutrition. These neurotics, without exception, suffer from anemia. Therefore the diet and regimen require special supervision. Rest, mental and physical, with proper hygienic surroundings and forced scientific feeding, will probably cure the majority of cases. In some of the severer types massage, tonic baths, and electricity are indicated. Many of these cases begin with dyspepsia resulting often from post-nasal catarrh. The social instincts should be cultivated and every possible effort made to enjoy life. In this state the nervous centres are exhausted and must be built up again by the enriched blood. Change of climate to a higher altitude is often useful in these cases as a stimulant to digestion and nutrition. It is in this way that advantage is derived from a trip to the Adirondaek region or the Rangeley

Lakes in Maine. Out-of-door exercise, as in the treatment of all functional nervous disorders, is of the greatest utility. It has a most favorable influence on the general health. Wind and sun, having a tanning influence on the skin which will render the blushing less remarkable, should be courted as much as possible when taking outdoor exercise. During attacks of blushing relief is often obtained by lying down; they then gradually disappear under the influence of rest. An irrational method of living, by which there is no regularity in respect of food, exercise, and rest, is the cause of most of the weakness of the nervous system in these individuals. This is more particularly true among the poorer classes. The women, looking after the wants of the household, see that the other members of the family get food, but neglect to supply themselves in a proper manner; they thus soon become victims of digestive disorders and drift into chronic invalidism. Fried meats, pastry and pickles, strong tea, coffee, and wines, are all agents in retarding the digestion and impoverishing the blood. Morbid blushing is often caused by bad digestion. The irritative action of wines or other alcoholic drinks on the mucous membrane of the stomach reflexly causes flushing of the face.

Cold bathing is preventive and also exercises a curative influence on this state; but as in many cases the cold bath is injurious and cannot be tolerated, the patient should be gradually trained to resist its depressing influence. The bath should be first given tepid and the temperature gradually lowered in each succeeding bath. The immersion should be of very short duration, and should be immediately followed by vigorous friction with a coarse towel or a flesh brush or bath glove, and finally the application of the warm bare hand until the entire surface of the body glows. Hot baths are often very beneficial to nervous patients and are best taken before retiring.

Electricity is of considerable advantage in these cases of nervousness; mild galvanism should be applied daily for a short time only.

If the face is heated and reddened by sitting in close proximity to the fire or by bathing it in very hot water, it will give immunity from blushing for a very considerable time.

Many drugs are of great advantage in this disorder, notably iron, quinine, camphor, and turpentine. Stimulants are very disadvantageous and should be avoided as much as possible.

Vasomotor disorder; abdominal flushing.—Mrs. A. E., 40 years of age; seven years married, but never pregnant. She has been ailing ever since her marriage. Before this she worked hard at monthly nursing. For several years past she has suffered from constant pain in the lumbar region posteriorly. Frequently suffers from severe pain and a sensation of burning in the vertex, necessitating the use of local applications for relief. Feels constantly fatigued and is compelled to lie down frequently. Has “no ambition or appetite.” For years past she has not taken any breakfast, with the exception of three or four cups of strong coffee. During menstruation nothing is retained on the stomach except the coffee. Now menstruates every two weeks, and during these periods the abdomen becomes swelled and assumes a dark or bluish-red color and feels very hard; at the same time the lower extremities are “just like death, cold and clammy.” There is also severe abdominal pain and the face is exceptionally red and hot. She feels feverish and thirsty, and has “fever sores” about the nose and mouth. There is also incontinence of urine, and the urine is scanty by day but excessive by night. During menstruation the bowels do not move, even after enemata. The tongue is coated with a whitish-brown fur. During her menses she is compelled to remain in bed, and during her last period was delirious and tore her hair out in handfuls.

Vasomotor paresis of the lower extremities sometimes takes place in the nervous and hysterical, in which the legs become extremely hard and engorged almost to bursting. This also occurs at times in the hands or face. In speaking of a case of this type where the abdomen was the seat of the disorder, Dr. Weir Mitchell says: “The last case of hysterical vasomotor manifestations which I shall quote was so amazing that if I had not had the good fortune to see it over and over, and to show it once to my friend Dr. William V. Keating, I might reasonably have hesitated to tax the credulity of my hearers.

“Some twenty years ago I attended a young married woman whose life was embittered by losses of property and by the ill treatment of her husband, who finally deserted her. For a long period she exhibited, at times, hysteric disorders in the form of spasms, rigors, hemipalsies, and at last, for a month or two, moderate maniacal excitement. With favoring circumstances she at last got well, and removing to the West was lost sight of

until about ten years ago, when I was called to see her at a hotel in Philadelphia. At this time my patient was 35 years old, was irregular as to her monthly flow, and had, as I found, a womb tilted forward but not diseased, and no ovarian tenderness, or, at least, no tenderness of belly which was not the same everywhere. She was rather pale and very thin, and had a relaxed pendent abdomen marked by the scars of four pregnancies. I could find no disease of heart, lungs, or kidney. She gave me this brief history: After some years of ease and comfort she had been led to risk her property in a wild speculation which ruined her, and now she was keeping a boarding house in New York and was doing well, or likely to do well, except for the strange malady for which she came to consult me. After her new misfortunes she had some hysterical troubles, but these ceased to annoy her, and she began to observe that at or about the time of her menstrual flow, and afterward at any time, she was liable to have an enlargement of the belly, which did not seem to her to be due to wind, as with that form of swelling her previous experience had made her but too fully acquainted. The trouble became by degrees worse, and at last was so extreme as to cause certain unpleasant feelings and to subject her to suspicions of being pregnant.

"The swelling was certainly caused at times by emotion. It began at any time, rarely at night. Within a few hours the belly, in place of being flaccid and pendent, was swollen enormously. She looked, in fact, as a woman, thin as she was, would have looked at the eighth month of pregnancy. Other attacks were less severe, but always they lasted for some hours before she could stand up, and it was usually a week before she was well.

"When I saw her an attack was at its worst. The woman's pulse was about 165 and was a mere thread, at times imperceptible. Her face and limbs were white and cold. The abdomen was tense and red and could be felt to throb distinctly, while all over it the vessels, veins, and arteries were visibly enlarged. On listening over the belly I could hear a humming noise, a slight thrill. The chest itself was not quite so pale as the neck or face, but the breath was difficult and rapid. It was clear that, owing to palsy of all the abdominal vessels, all the available blood of the body of a too bloodless woman was for a time in this cavity and its walls. If while in this state she sat up she

instantly fainted, and it was difficult even to lift her head because of the symptoms thus caused. She herself complained of the tension of the belly and of the distressing pulsation within it.

"The day after, the abdomen was certainly a third less, and it was then seen by Dr. Keating, who, like myself, could give no other explanation of the condition seen than the one I have just mentioned. After a week the belly became nearly as flat as usual, and I then ceased to see my patient. I learned from her some years later that by slow degrees she had become well of this singular malady."

A former United States Senator from Rhode Island was noted as exhibiting a peculiar phase of morbid blushing during his forensic efforts: his face seemed to be divided into thirds; the centre of the face from forehead to chin would become extremely red, while his ears and the sides of his cheeks would exhibit the opposite condition of extreme pallor.

Morbid flushing; vasomotor disorder after hemiplegia; diabetes; dietetic treatment; recovery.—Mrs. K., 68 years of age (see plate, Fig. 6). About twelve years ago she had an attack of hemiplegia on the right side. She can see but very little with the right eye. Whenever she takes a small quantity of tea it sends the blood to one side of the face, accompanied by a tingling sensation; coffee has no such effect. This also occurs when she is excited and when busily engaged in mental work. This she has learned to look upon as a warning to desist from excitement or mental strain. She is often kept awake at night from nervousness excited by the burning and tingling. The patient is very stout and suffers from the fat form of diabetes. Under dietetic treatment, both liquid and solid, the sugar has disappeared from her urine and she is now in fair health.

Functional vasomotor disorder; unilateral flushing.—M. F., aged 20, single (see plate, Fig. 4). Seen January 1st, 1892. Strong, tall blonde. Unilateral flushing of right side of face. It came on first three months ago, eight days before menstrual period, and was coincident with an attack of leucorrhœa. Has also occurred from three to eight days before menstrual period. Her face is pale at first, but gradually gets red until most of right side is extremely so, the left side remaining pale. The redness disappears as the menstrual flow comes on.

Nervous unilateral flushings and indigestion.—Mrs. A. Z.,

27 years of age; has had two children (see plate, Fig. 5). She is extremely nervous, especially after a hearty meal. When digestion is slow, as it usually is, it is generally accompanied by palpitation of the heart. She had malaria when in the country five years ago. She was well up to this time. Her indigestion is accompanied by flatulence and eructations, but these are not very severe. Two weeks ago she was seized with a very severe headache. This was similar to those she has had at every menstrual period for the past five years. Occasionally a period is not accompanied by this headache, but if so the headache is much worse at the next period. They are migrainous in character and are generally located in the right temple. At times she suffers from severe gastralgia, which is most noticeable when a storm is approaching. For the past two weeks the scalp has been exquisitely tender and the hair has come out freely on combing it. At present her headaches are mostly occipital. She is frequently troubled with unilateral flushings of the face (left side), accompanied by dizziness and vertigo.

776 MADISON AVENUE.

UTERINE DILATATION FOR STERILITY.

WITH REPORT OF CASES.¹

BY

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In these times of rapid progress in gynecological surgery, when numerous brilliant results from major operations are being achieved on all sides, it is often advisable to pause for an instant to consider some of the results of minor gynecological procedures which, though they may not require in their performance the technical skill necessary for a hysterectomy nor add as much to the reputation of the operator, may frequently be of even greater importance to the patient herself, if not to the community. The removal of a uterus benefits the individual and deprives her of her reproductive power, but the removal of a cause

¹ Read before the New York Obstetrical Society April 16th, 1895.

of sterility is far more widespread in its results, benefiting not only the individual but the race.

The means available for the restoration of the reproductive function in cases where it is apparently lost or held in abeyance is a subject demanding our gravest consideration, and in this paper I desire to speak particularly of the benefits derived from minor operative procedures intended to cause the uterus to perform its normal functions.

Nothing is more distressing to the average married woman than to be sterile and know that the condition is due to some defect, either congenital or acquired, in her anatomical construction. She has always regarded and will forever view this incapacity as a reproach upon her womanhood, and no amount of argument can make her accept the condition with resignation.

Sterility in woman implies an incapacity for conception, and may be either congenital, when it results from some faulty development of her anatomical structure, or acquired, when it arises from disease occurring before she has had an opportunity to conceive or from some condition arising after an uncertain period of fertility. A woman is not ordinarily considered sterile until several years, at least, have passed since her marriage or since her last impregnation, provided, of course, she resorts to no means to prevent conception. If, however, the conditions which ordinarily produce sterility are present in a woman at the time of her marriage, there is no reason why she should not be considered sterile from the beginning, although custom demands that she be married at least three years before she is considered sterile.

Matthews Duncan states that fifty per cent of women become pregnant during the first year of married life, thirty per cent during the second, eight per cent during the third, two per cent during the fourth, and about two per cent after the fourth year. He therefore concludes that sterility may be suspected in a woman who has passed her first year of married life without conceiving, and the presumption grows stronger with each succeeding year, and after the fourth year the probabilities of conception are exceedingly small.

Of the numerous causes of sterility in women, we are particularly interested, in this paper, in those which have their seat, if not their origin, in the uterus itself and in the uterine ends of the Fallopian tubes, acting—

1. By preventing the entrance of the spermatozoa into the uterine canal.

2. By preventing the passage of the spermatozoa into the Fallopian tubes, or the exit of the impregnated or unimpregnated ovum from the tube into the uterine canal.

3. By producing an altered condition of the endometrium, due to the retention within the uterine cavity of secretions which have a powerful influence in deranging the physiological process of fecundation, and damaging the products of conception by so altering the mucous membrane of the interior of the uterus that it no longer offers a suitable nidus for the growth of the ovum, should impregnation occur and the ovum descend as far as the uterine cavity.

Any circumstance tending to produce imperviousness of the external or internal os uteri must necessarily be an important factor in the causation of sterility, either by mechanically obstructing the passages to the entrance of the fecundating material from without, or, by opposing the exit of the normal discharges from within the uterus, gradually set up a degenerative inflammatory action in the endometrium which will terminate in the destruction of its normal elements, or the production of an hypertrophied condition of the membrane which produces a mechanical obstruction both by its thickening and by the viscid discharge which accompanies the condition. It is evident, however, that this mechanical explanation is insufficient, because no mere contraction short of absolute occlusion could prevent the passage of the microscopic spermatozoa, but the clinical fact remains that by dilating the uterine canal we place such a patient in a more favorable condition for conception.

In most cases of mechanical obstruction to conception the difficulty lies in the presence of a plug of extremely tenacious cervical mucus from the diseased endometrium or Nabothian follicles, constriction of the circular fibres at the internal or external os uteri, flexion, or an inflammation involving one or both Fallopian tubes; and in all these conditions the dilatation of the uterine canal, so as to secure ample drainage from the interior of the uterus, will assist in causing the subsidence of the inflammatory processes and ultimately tend to arrest the progress of the disease. Where the organ can be divulsed, the diseased endometrium removed with a curette, and the uterine cavity packed with an antiseptic gauze, the course of treatment will be shortened to a very marked extent.

These factors, which would ultimately give rise to a condition of sterility should the woman marry, may exist from birth, but only make themselves known to the patient after the period of puberty by the numerous subjective symptoms so common in these cases; and even if the patient is married and has not become pregnant, she seldom consults the physician for this symptom alone, but rather for the more distressing symptoms of pain, etc., caused by the pathological conditions existing in the uterus and tubes.

It is hardly necessary to go into detail as to the numerous symptoms accompanying the conditions of the uterine canal and tubes which may produce sterility. Suffice it to say that they vary in extent and severity, to a certain degree, with the amount of pathological change in the structures involved, and to a far greater degree with the resisting power of the individual patient. Pelvic pain is the symptom which usually causes them to seek relief at the physician's hands; and, while this pain may be constant, it is almost invariably increased before or during the menstrual period. When there is involvement of cervical or corporeal endometrium or catarrh of the Fallopian tubes, leucorrhea is almost invariably present, and varies in its consistence and quantity with the variety and extent of the disease.

Sterility is often present in a certain class of cases where it is the only condition complained of. These are cases of simple endometritis where the secretion is sufficient to destroy the spermatozoa in their upward passage, or mechanically prevent the villi of the fertilized ovum from finding an attachment in the diseased mucous membrane. In some instances a woman with an antelexion or a moderate degree of stenosis will have little or no menstrual discomfort prior to her marriage, but the uterine congestion incident to the marital relation will cause such a thickening of the endometrium and a consequent narrowing of the canal that she will begin to suffer from symptoms of endometritis and stenosis and date her trouble from the time she was married.

No treatment should be attempted for the relief of sterility alone which involves danger to the life of the woman, and no operation should be undertaken unless it should appear beyond a reasonable doubt that the cause of the sterility rests with the woman herself.

The methods I have employed in increasing the calibre of the

uterine canal have been gradual and forcible dilatation or divulsion. The former is accomplished by means of graduated solid hard rubber or steel uterine sounds, and the instruments devised for the purpose by Wylie and Goodell. No anesthetic is used, except perhaps the local application of cocaine in highly sensitive cases. The dilatation is done at first daily or every other day, never carrying the stretching beyond the patient's power of endurance. As the canal becomes larger and shows a lessened tendency to contract, the interval between the sittings is increased until the dilatation is done but once or twice monthly, just prior to the menstrual epoch. All intrauterine manipulations are done under the strictest antiseptic precautions as to instruments, operator, and patient.

I employ no intrauterine antiseptic or counter-irritant applications after gradual dilatation, as I believe that such applications do harm unless the dilatation has been carried to such an extent that the circular fibres at the internal os have been stretched beyond their ability to contract. The uterus is an erectile muscular organ, responding readily, by contracting, to any stimulus, and any foreign irritating substance applied to its interior, besides producing an excessive secretion from the already diseased endometrium, causes the uterus to contract forcibly in its attempt to expel the contents. The previously contracted fibres at the internal os, being the stronger, will contract to a greater extent and close the organ at that point, and any further contraction of the organ, if sufficiently powerful, may force a portion of the intrauterine contents into one or both the Fallopian tubes, there to set up an acute salpingitis with all its attendant dangers and discomforts.

It is claimed by some opponents of this gradual method of dilatation of the uterus that the introduction of a solid metal or hard-rubber dilator into the constricted uterine canal acts as a piston and forces the liquid contents of the organ into the Fallopian tubes, thereby exposing the patient to the danger of infection and inflammation of these structures. The danger from this source is minimized by the employment of graduated dilators, carefully manipulated, without the use of force.

Divulsion or forcible dilatation of the uterine canal is done under an anesthetic, observing the strictest antiseptic precautions, the uterus being dilated to its fullest extent, resorting to partial division of the circular fibres at the internal os when

necessary, although when this is done great care should be exercised to prevent rupture of the organ by too forcible dilatation. When there are indications of presence of the endometritis, the whole of the mucous membrane should be removed from the interior of the uterus by means of a sharp curette and the cavity packed with a strip of sterilized iodoform gauze. I leave this packing in position from five to seven days, its removal being followed by an intrauterine douche of sterilized water. When possible the displaced uterus should be raised and maintained in position by a vaginal packing of iodoform gauze. I have found that after divulsion and packing the uterine canal rarely returns to its previous angular or contracted condition.

Among properly selected cases there will be but few instances where dilatation or divulsion of the cervix will not improve or cure the pelvic pain and the many distressing menstrual symptoms complained of by women suffering from uterine flexions, strictures, or endometritis; and where the sterility may be attributed to any or all of these conditions, complicated by an inflammation of the uterine ends of the Fallopian tubes, divulsion and curetting will, in a large majority of the cases, render the woman capable of impregnation.

In my experience more sterile women have become pregnant after gradual dilatation of the uterine canal than after divulsion and curettement under an anesthetic, but this seems to me to be due to the fact that in the cases requiring the latter procedure the diseased conditions to be overcome are much more extensive than in the former.

The methods of treatment employed in the cases reported in this paper have varied with the degree of flexion and stenosis, the amount of endometritis, and the extent and variety of tubal involvement. Where the stenosis and endometritis have been slight, gradual dilatation has been employed; but where the flexion was well marked, with rigid stenosis at the internal os, together with extensive involvement of the endometrium, divulsion and curettement under an anesthetic have in almost every instance been resorted to. In a few cases, which were in my opinion sufficiently serious to demand a curettement under ether, I was compelled, by reason of the patients absolutely refusing operation under an anesthetic, to resort to the gradual method of dilatation, with the most excellent results, the patients ultimately becoming pregnant, although in some of the

cases it was necessary to prolong the course of treatment over a number of months.

In some of my cases (Nos. 1, 2, 9, and 10) the tubes were so extensively involved in a catarrhal inflammation that, had they been seen several years ago, oöphorectomy would have been considered the only operation available to afford a permanent relief; but, by enlarging the uterine canal, drainage from the tubes was favored and the catarrhal condition relieved either completely or to a sufficient extent to permit the passage of the ovum into the uterus.

In doubtful cases of sterility where ante-menstrual dysmenorrhea exists, if we find that gradual dilatation of the cervix relieves the dysmenorrhea, we may be reasonably certain that the cause of the dysmenorrhea is also the cause of the sterility, and that the relief of the former will presumably result in the relief of the latter.

I have dilated the uterine canal in thirty-one cases of women who were married over three years and sterile, or who, although not married quite three years, were in such a condition that I considered their chances of becoming pregnant very slight. All of these cases were, in my opinion, sterile only from some defect in their anatomical structure, or from some pathological change dependent upon this defect, and capable of impregnation should this defect be removed. Nineteen of these cases were treated by gradual dilatation and twelve by divulsion and curettement. Five of the total number have disappeared and I am unable to state the results in their cases. Of the twenty-six whose histories I have been able to follow up to the present time, sixteen have become pregnant—eleven after gradual dilatation, or fifty-eight per cent of the total number treated by this method, and five after divulsion, or forty-one per cent of the number operated upon. In all the cases the usual symptoms accompanying flexion, stenosis, and endometritis were present, and in some of them, Cases 1, 2, 9, and 10, there were unmistakable evidences of tubal inflammation on one or both sides—conditions which, besides being undoubtedly the cause of their sterility, were also the cause of a great deal of physical suffering. The establishment of free drainage through the uterus by dilating its canal either relieved or cured the subjective symptoms from which they were suffering, and in fifty-one per cent of the cases the restoration of the uterine canal to its normal condition rendered

the patients capable of performing their normal reproductive function.

CASE I.—Mrs. L. R., aged 27 years, married four years, sterile. Patient a handsome, well-developed woman, who has suffered since puberty from headache, backache, inguinal pain, leucorrhœa, severe dysmenorrhœa, dyspareunia, hysteria, and mental depression. Menstruates regularly, but all her symptoms are aggravated for six or seven days prior to each epoch, and only partially relieved by the appearance of the flow, which is at first scanty, becoming more profuse on the second day, and lasting a week or more. She has at times suffered from hysteria and melancholia bordering on mental derangement, and has been under treatment almost continually since her marriage, with little or no permanent benefit. Her uterus was enlarged, retroflexed, stenosed at the internal os, and exquisitely tender, together with indications of tubal inflammation. Curettage and packing with iodoform gauze was done May 5th, 1892. For the next twenty months her condition was very markedly improved, all the distressing symptoms from which she formerly suffered having gradually disappeared. Pregnancy occurred in January, 1894—twenty months after operation, and almost seven years after marriage.

CASE II.—Mrs. C. D., aged 25 years, married four years, sterile—a well-developed, healthy-looking woman, who had suffered since puberty, and especially since her marriage, from the most excruciating premenstrual dysmenorrhœa, causing her to spend several days out of each month in bed, and frequently requiring the administration of morphine hypodermically. In spite of the pain and discomfort she suffered, her principal complaint was her inability to become pregnant. On examination I found she had an enlarged, exquisitely tender, retroflexed and adherent uterus, left salpingitis, with an enlarged, adherent left ovary. Celiotomy was advised, but declined except as a last resort. On October 31st, 1892, I etherized her and found the uterine adhesions weak and easily overcome. The uterine canal was dilated, thoroughly curetted, and packed with iodoform gauze. The uterus was raised almost to its normal position by vaginal packing. Convalescence was normal, and for the following year she suffered little or no inconvenience at her menstrual periods. Her uterus returned to its normal size and was retained in position by means of a pessary. The tubal enlarge-

ment and tenderness disappeared entirely. In February, 1894, she became pregnant—fifteen months after operation, and five and one-half years after marriage.

CASE III.—Mrs. A. F., aged 36 years, married three and one-half years, sterile. The patient was a large, robust, healthy-looking woman, who had suffered since puberty from backache, dysmenorrhea (before menstruation), leucorrhea, headache, and extreme nervousness. Since her marriage her condition has grown worse. Upon examination there was found an enlarged, tender uterus with stenosis at internal os. There was apparently no tubal or ovarian involvement, but the endometrium was considerably thickened. The uterus was divulsed, curetted, and packed May 26th, 1892, and for several months there was entire cessation of all abnormal uterine symptoms. She became pregnant in October, 1892—four years after marriage, and five months after operation.

CASE IV.—Mrs. A. S., aged 23 years, married three years, sterile. When first examined, in September, 1892, the patient had a retroflexed uterus, with stenosis at the internal os and endometritis, and suffered from the usual symptoms of ante-menstrual dysmenorrhea, headache, backache, and leucorrhea. Under an anesthetic the uterus was divulsed, curetted, and packed with iodoform gauze in March, 1893, and five months later the patient became pregnant—almost four years after her marriage.

CASE V.—Mrs. A. K., aged 18 years, married two years, never pregnant. Has always enjoyed excellent health, except that she had dysmenorrhea (before menstruation), menorrhagia, and profuse leucorrhea. Her uterus was found to be enlarged, ante-flexed, with stenosis at the internal os. September 11th, 1894, her uterus was divulsed, curetted, and packed with iodoform gauze. In less than a month after the operation she became pregnant—a little over two years after her marriage.

CASE VI.—Mrs. A. S., aged 36 years, married ten years, sterile. Had been an invalid for a number of years, suffering from hysteria and various reflex nervous symptoms affecting all parts of her body. Her condition was such that at times it simulated angina pectoris, for which a physician who formerly attended her administered nitrite of amyl in enormous doses, frequently as much as three drachms, by inhalation, in the course of a night. Her symptoms were at first very puzzling, but the fact that they

were aggravated at each menstrual epoch led me to make a vaginal and uterine examination, which revealed a well-marked stenosis at the internal os, exquisitely tender at the point of constriction, and any attempt to pass a sound was followed by an attack of hysterical convulsions. She also had an enlarged and tender left tube and ovary. Dilatation under an anesthetic was advised, but declined by the patient. Gradual dilatation under cocaine was therefore employed with the most satisfactory result. As soon as the contraction at the internal os had been overcome her general health began to improve, and there was almost complete cessation of the distressing nervous symptoms to which she had been subject for years. Her menstruation became less painful, and the persistent leucorrhea from which she had formerly suffered disappeared entirely. In December, 1891, she became pregnant—twelve years after her marriage, and about ten months after her uterine canal had been dilated. This pregnancy and the next terminated in a miscarriage at the second month. Her third pregnancy, occurring in May, 1893, terminated normally, and since the birth of her child her health has been excellent.

CASE VII.—Mrs. K. S., aged 28 years, married four and one-half years, sterile. The patient, a fairly well developed but anemic woman, had suffered from pain in her left inguinal region, backache, profuse leucorrhea, severe dysmenorrhea, before and during her menstrual flow, which, though regular, was somewhat profuse, lasting four to six days. Her condition was such that she was obliged to remain in bed for one or two days during each menstrual epoch. On examination in March, 1891, her uterus was found to be enlarged, retroverted, with stenosis at the internal os. Operation under an anesthetic was refused, and slow dilatation was done at intervals of two or three days and the uterus maintained in position by means of a suitable pessary. The patient began to experience relief almost from the first, and in the course of two or three months her distressing symptoms had almost entirely disappeared, her uterus had returned to its normal position, the stenosis had been entirely overcome and her general health greatly improved. She became pregnant in April, 1892—almost six years after marriage, and a year after dilatation was begun.

CASE VIII.—Mrs. M. McC., aged 26 years, married four and one-half years, sterile. Patient anemic; complains of severe

dysmenorrhea occurring one or two days before her menstrual period, and relieved by the occurrence of the flow. Menstruation lasts but two or three days, and the amount of blood lost is less than normal. Examination revealed an ante flexed uterus with stenosis at the internal os. As the patient declined operation under an anesthetic, the uterine canal was dilated gradually, under cocaine, at regular intervals. From the first she experienced considerable relief from the symptoms from which she formerly complained, and after about two months' treatment she discharged herself as cured. Two months after her last visit and five years after her marriage she became pregnant, but miscarried at four months. A second pregnancy, ten months later, resulted in the delivery of twins at term. She has since had another child and is in excellent physical condition.

CASE IX.—Mrs. B. M., aged 23 years, married four years, sterile. Since puberty she has suffered from dysmenorrhea, backache, inguinal pains, and leucorrhea, all the symptoms being aggravated before and during her menstrual periods. She has had several attacks of severe inflammatory pain in her pelvic regions during the past four years. When first seen by the writer, in January, 1890, she was suffering from a severe attack of pelviperitonitis, evidently originating from some inflammatory disturbance in her right Fallopian tube. After this had subsided under treatment, examination revealed an enlarged, tender, and slightly prolapsed uterus, adherent upon the right side. The right tube and ovary were enlarged and prolapsed, while the left appendages were similarly though not so extensively involved. There was also a marked stenosis at the internal os. Persistent local treatment induced a gradual subsidence of the tubal and ovarian inflammation, and the induration in the right broad ligament was absorbed. Her condition was such, however, that I advised an exploratory celiotomy to ascertain the exact nature and extent of the tubal and ovarian involvement, but she declined operation. Divulsion of the uterus and curettage was then advised, but the patient refused to submit to any operation involving the administration of an anesthetic. Gradual dilatation was resorted to, and after a number of sittings her distressing menstrual symptoms began to subside and the function became more nearly natural. Her general health was greatly improved, the leucorrhea stopped, and she considered herself well. Her former ovarian and tubal inflammation had

led me to suppose that she would be permanently sterile, but, greatly to my surprise, in November, 1894, I found her to be almost three months pregnant. Pregnancy occurred about two years after the last cervical dilatation and almost eight years after her marriage.

CASE X.—Mrs. K. H., aged 24 years, married three and one-half years, sterile. For a number of years, and especially since her marriage, this patient has suffered almost constantly from pelvic distress, intense headaches, backache, leucorrhea, etc. Her condition becomes much worse about a week before her menstruation is due, and by the time the flow begins her sufferings are so intense that she is compelled to go to bed and resort to morphine for relief. As soon as the flow appears her pain decreases somewhat, although she is in more or less distress as long as menstruation lasts. She is fairly comfortable for only about a week or ten days out of each month. Examination of her pelvic organs (December, 1891) revealed an enlarged, tender, and somewhat immovable uterus, slightly prolapsed, with a well-marked and exquisitely sensitive stricture at the internal os. The tubes and ovaries were involved in the general pelvic inflammation. Divulsion and curettage under an anesthetic were advised, but rejected by the patient, who did not think she was strong enough to undergo an operation. Gradual dilatation was attempted, without much success on account of the pain caused by the passage of instruments into the uterus, although the application of a ten per cent solution of cocaine rendered the procedure less painful. Her suffering at each dilatation was such that after a few sittings she decided to wait a few months and then have the operation done under ether. In May, 1892, she stated that since the dilatation her periods had been comparatively painless. She also stated that she had not menstruated for ten weeks, and upon examination I found she was pregnant. The event had occurred about two months after I had ceased dilating the uterus and about four years after her marriage. Since the birth of this child she has been perfectly well, and is now pregnant a second time.

CASE XI.—Mrs. A. S., aged 23 years, married three and one-half years, sterile. This patient had always enjoyed the best of health and complained of nothing except her inability to become pregnant. On examination in March, 1891, nothing could be found at first to account for her sterility, but on passing a uterine

sound it encountered a slight obstruction at the internal os which prevented its easy passage into the body of the organ. Cervical stenosis was diagnosed and operation advised. This the patient declined and was lost sight of for about two months, when she returned with well-marked symptoms of pregnancy, and stated that she had menstruated a few days after the examination during which the sound had been passed into her uterus, and had not menstruated since. She evidently became impregnated at this menstrual epoch—three and one-half years after marriage, and less than a week after her cervical canal had been slightly dilated by the passage of an ordinary uterine sound.

CASE XII.—Mrs. K. F., aged 23 years, married three years, sterile. When first seen, in 1892, she complained of all the usual symptoms accompanying ante flexion with stenosis at the internal os and endometritis. The uterine canal was dilated gradually at regular intervals during a period of three months. Relief from her distressing menstrual symptoms was marked from the beginning of treatment. Pregnancy occurred four months after the last dilatation, and about three and one-half years after marriage.

CASE XIII.—Mrs. N. J., aged 25 years, married three years, sterile. The patient was a poorly developed, anemic woman, who since her marriage had suffered from all the distressing symptoms incident to cervical stenosis and consequent endometritis. She declined operation under an anesthetic, and during a period of seven months from June, 1892, her uterine canal was dilated at rather infrequent intervals. Almost from the first dilatation her general health began to improve, and the uterine symptoms from which she suffered disappeared almost entirely. In February, 1893, she became pregnant—four years after her marriage, and about six months after the first dilatation. There has been no return of her symptoms since her confinement.

CASE XIV.—Mrs. M. C., aged 25 years, married three and one-half years, sterile. Menses regular and painless. Suffers considerably from backache, headache, painful micturition, and leucorrhea. Her uterus was found enlarged and tender, with a very irritable constriction at the internal os. As she declined operation under an anesthetic, gradual dilatation under cocaine was done. Her symptoms improved slowly, and after a few months' treatment she was apparently perfectly well. Pregnancy occurred in October, 1891, three months after the last dilatation, and over four years after her marriage. She was delivered at term of twins, and since then has had another child.

CASE XV.—Mrs. E. K., aged 27 years, married two and one-half years, no children, no miscarriages. Examined September 27th, 1891, when it was found that she had retroversion with stenosis of the internal os. Although she suffered greatly from the usual symptoms incident to the condition of her genital organs, her principal complaint was due to her inability to become pregnant. Gradual dilatation of her uterine canal was done and the uterus maintained in position by means of tampons. After one or two sittings the symptoms of which she complained became less severe, and after a half-dozen dilatations she discharged herself as cured. Pregnancy occurred in February, 1892, almost three years after marriage, and less than three months after the last dilatation of her uterine canal.

CASE XVI.—Mrs. M. M., aged 22 years, married eighteen months, no children, no miscarriages. Her menstruation has always been regular, lasting five or six days, but always preceded by severe lancinating pains, which were relieved by the flow. She has constant backache, pain in both inguinal regions, and a persistent leucorrhea. When examined, May 11th, 1894, she was found to have an enlarged and prolapsed right ovary, ante-flexion with stenosis at the internal os, and endometritis. Treated by gradual dilatation of the uterine canal, her symptoms were greatly relieved, and pregnancy occurred in September, 1894, almost two years after marriage, and about one month after the final dilatation.

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VENTROFIXATION AND ALEXANDER'S OPERATION COMPARED.¹

BY

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COMPARATIVELY limited as my experience has been with these two operations, yet it might be of interest to the Society to give that experience and the conclusions which I have drawn from having performed one or the other of them forty-nine times.

¹ Read before the American Gynecological Society at the meeting in Baltimore, May 28th, 1895.

I need not take up the time of such learned men as these around me in pointing out the necessity for this or any operation for the cure of retroversion. When I say that I have only performed the Alexander operation twenty-one times and ventrofixation twenty-eight times in the last five years, while during that time I must have attended many hundred cases of this disease, it is evident that I only considered a small number of them as being subjects for operative treatment. Many cases have come before my notice in which the retroversion was discovered incidentally and caused no symptoms whatever. Others, suffering from slight symptoms, were easily cured, simply by replacing the displaced organ and by removing the cause which brought the condition about. Others, again, failed to be cured by such simple measures and required the prolonged use of the tampon, and others of the pessary. It was only in those cases which were not benefited by these means that I resorted to the operation. If there are those who doubt the necessity of treating this condition at all, as I believe there are a few, let me remind them that a woman with retroversion sometimes suffers so acutely and constantly as to be really an object of pity. Not only is the circulation of the uterus greatly interfered with by the kinking of the vessels in the broad ligaments and by the pressure of the fundus on the uterine veins, but also the bladder is frequently irritated by the pressure of the cervix on its neck, and the bowel also by the pressure of the heavy fundus on the rectum, which is in some cases sufficient to completely obstruct all passage through the bowel, the patient constantly experiencing a feeling of tenesmus or bearing down, the obstacle to defecation being present even when the bowels are in a liquid condition. But the worst symptoms, perhaps, are the reflex ones caused by the pressure of the uterus on the branches of the great sympathetic nerve, leading to distention and sluggishness of the bowels, dyspepsia, palpitation of the heart, disorders of vision, and headaches. Neither must we forget that the retroverted uterus and ovaries are often so painful as to offer an insurmountable barrier to sexual intercourse.

Of the many claims to our gratitude which Dr. Howard Kelly has won I think this the greatest, for of all the operations which I have ever performed the one which has afforded me the greatest satisfaction is ventrofixation of the uterus. The satisfaction comes from three distinct sources: first, from its effectiveness

in accomplishing the object desired ; second, in accomplishing it with the smallest possible risk to the patient ; and, third, in effecting it with the greatest possible ease to the operator.

I shall now consider each of these points in detail. First, its efficiency. When a woman consults us for retroversion of the uterus, for prolapse, or even for procidentia—using this term to mean falling of the womb in which the organ projects more or less from the vulva—we may treat her in several different ways. We may advise her to wear a tight T or perineal bandage ; this of course is the poorest kind of a makeshift and one which few women would be content with. We may replace it and keep it up by means of cotton or woollen pads, which are, however, very unsatisfactory for the reason that the vulva in many cases is large and relaxed ; the tampon will only remain in for a short time, dropping out either while she is walking or at the next effort at defecation. Even if the tampon, when accompanied by the perineal pad which keeps the tampon in, were effective, there would still be the great objection that its use necessitated the spending of much of the unhappy woman's time in journeying to and fro to the dispensary or consulting room. This method never cures, and the patient sooner or later becomes tired of it and abandons it altogether. The next best treatment is the pessary, but this has been abandoned by most specialists, although practised still by some general practitioners. The pessary has many objections. First of all, if the ovaries and tubes are inflamed and bound down by adhesions the pessary cannot be borne, and as a rule the patient returns in a few hours or in a few days, stating that she cannot bear the pain of it, and she will with good reason blame us for making her worse. Second, even if there were no inflammation or adhesions and the uterus and appendages were freely movable, the vaginal outlet, as a rule, is too large to prevent the pessary from coming out, or, if not already so, the pressure exercised by the pessary will distend it until it drops out, and then larger and larger ones must be introduced. Even when the vulva is small, as in virgins, and the pessary can be worn by the patient, she must come at regular intervals to the physician's office to have it cleansed and reintroduced ; it is more or less a constant source of irritation and is apt to cause leucorrhea, which in many cases I have seen become purulent ; in other cases it becomes encrusted with phosphatic deposits, rendering it exceedingly irritating ; cases are

even on record in which the pessary, when not regularly attended to, has ulcerated through the vaginal wall until malignant disease has been set up, and in other cases it has worked its way clear through the vagina to the abdominal cavity, whence it has been removed by abdominal section. Third, the pessary interferes more or less with sexual intercourse, while most women feel uncomfortable at the very idea of having an instrument inside of them and are always glad to dispense with it as soon as possible. To give the pessary its due, however, we must admit that a few cases of retroversion and prolapse are cured after three months' to a year's use of it, but in the meantime, of course, the uterus comes down again when the pessary is removed. It is most useful in temporary cases, such as when the womb falls because it has become pregnant and heavy; in such cases the pessary is useful to hold the womb up until the end of the third month, after which by its size it will be prevented from falling backward or descending. One of the objections to the pessary can be remedied by reducing the size of the vaginal outlet by performing anterior and posterior colporrhaphy, or, in other words, sewing up the lacerated perineum and reducing the area of the anterior vaginal wall by means of Stoltz's operation. Some have thought to cure the prolapse by this operation alone, but now all operators agree, especially Martin of Berlin, that no matter how much the vagina may be narrowed, even to the extent of closing it up altogether, as by Lefort's operation—which, of course, is only applicable to old widows—the uterus will still come down and present at the vulva. By at the same time dilating, curetting, and repairing a lacerated cervix, or amputating it if there is much cystic disease, the weight of the organ is reduced so much that the weak and relaxed ligaments are sometimes able to hold it up, but more often it drops again in spite of everything.

There remain three other procedures which are effective and which I shall mention in the order of their gravity—first, removal of the uterus by the abdomen or by the vagina; second, Alexander's operation; and, third, ventrofixation.

Although the removal of the retroverted or prolapsed uterus by the vagina is a much safer operation than when it is performed for a cancer or fibroids, owing to the facility with which it may be brought down and all bleeding points seen and secured, and also to the greater certainty of accomplishing asepsis, yet we

are hardly justified in resorting to it or to any operation in which the danger is so much greater than is the simple fastening of the uterus to the abdominal wall; while, when the appendages are diseased and the uterus is firmly attached with them to the sacrum or rectum, I have no hesitation in saying that the abdominal route is much more rational than the vaginal one. Even the authors of the latter method—Ségond, Richelot, and Péan—admit that they are frequently obliged to leave portions of the diseased structures adherent to the intestines. But even when there are no adhesions, is removal of the uterus and appendages always effective for curing prolapse of the pelvic contents? True, the uterus when removed can no longer prolapse, but the uterus is not the only organ there; even after its removal the woman may have prolapse of the pelvic floor, unless care is taken to sew the broad ligaments together, which is seldom done, although for my own part I make a practice of doing so when I remove the entire uterus by the vagina. But with ventrofixation not only is the entire uterus preserved and held up, but also the bladder, vagina, and small intestines are equally supported.

When we compare ventrofixation with Alexander's operation as regards efficiency, ventrofixation has one great advantage. Alexander's operation is a complete failure in all cases in which the uterus, or even the ovaries and tubes, are adherent. True, Alexander's operation was never meant for such cases, and no one would knowingly do it when the uterus is fixed. But sometimes the uterus appears movable and yet the mobility is very limited, and when we attempt to draw the fundus up to the abdominal wall by means of the round ligaments the latter will break sooner than the adhesions will. These adhesions which anchor the uterus explain some of the frequent failures of Alexander's operation; when there were no adhesions I have found Alexander's operation very effective in holding up the uterus. I have never had hernia after it, and I have only known of one relapse out of twenty-one cases.

One objection to Alexander's operation is that the round muscles, when they have not contracted for a long time, become fatty and break when pulled upon. There is another objection to Alexander's operation which does not apply to ventrofixation, and that is the pain and numbness of the groins and labia due to the severing of the nerve running along the round ligaments, of which several of my patients have complained.

Now, if we look at the two operations of ventrofixation and Alexander's from the standpoint of the risk to the patient, one might think at first sight that in this one respect, at least, the odds were in favor of Alexander's operation. But this is not the case. If there are no adhesions of the uterus, and the ovaries and tubes are not attached, the mere opening of the abdomen and fixation of the uterus under the rigorous aseptic precautions which we now employ is absolutely devoid of danger; while if there are adhesions it is ever so much safer to detach them with the fingers in the abdomen than to replace the uterus with the sound. At least one case has come to my knowledge of death from this procedure. Neither is Alexander's operation entirely devoid of risk, if not to the patient's life, at least to her comfort. A number of cases have come to my knowledge in which single or double inguinal hernia has followed—this, of course, should never happen, but the fact remains that it has happened; and a great many cases have been followed by suppuration, this having occurred in one of my own cases, while in a case under the care of a colleague the suppuration spread down between the folds of the broad ligaments, causing a true pelvic abscess. A few cases of death even have been recorded as having followed Alexander's operation; but it is only fair to say that since writing this paper I have heard of a case of death in Baltimore following ventrofixation from bleeding from the needleholes into the uterus, although I cannot understand how that accident could have happened. It must be distinctly understood that when ventrofixation is performed for removal of pus tubes or tearing away of adherent ovaries, it then assumes the mortality of the larger operation, which is greater or less according to who the operator is.

When we compare the operation from the point of view of the ease with which it can be performed, Alexander's operation is *hors de combat*. I was so fortunate at first in quickly finding the round ligaments and drawing them out that I could hardly believe that any skilled operator could have any difficulty in doing so; but after coming across two or three cases in succession in which the ligament broke on the slightest traction, I was compelled to open the abdomen and complete the Alexander operation by doing ventrofixation. I have also spent as much as one hour in finding the two ligaments, and I have seen other operators spend even more time and yet fail to get the uterus

forward, the incision having to be closed without curing the retroversion. I have, indeed, heard one quite well-known surgeon say, after searching for the ligaments for one hour and a half in vain, that he had tried it for the last time.

If the uterus were always free from adhesions when it appears so, and the round muscles always healthy, red, fleshy, and fairly strong bodies, there would be no difficulty in finding them and drawing them out. But, as a rule, in chronic cases of retroversion the muscle has not contracted for weeks, months, or years; the inevitable result is, of course, fatty degeneration. Ventrofixation, on the contrary, I have always found extremely easy. It can frequently be performed in from ten to fifteen minutes with an expenditure of less than an ounce of A. C. E. mixture. There is never any doubt about finding the uterus, and, when found, never any difficulty about drawing it up; when performed in the Trendelenburg posture it affords us an opportunity of examining the tubes and ovaries and of repairing them when necessary.

I cannot reconcile myself to the belief that so serious a mutilation as total extirpation for retroversion or prolapse is justifiable when such serious results may be avoided by the operation which I have just pointed out. My own course has been, when the case requires it, to perform, first, rapid dilatation; second, curetting, with the application of pure carbolic acid and tincture of iodine to every part of the endometrium; third, repair of the lacerated cervix; fourth, closure or narrowing of the anterior and posterior vaginal wall; fifth, opening the abdomen and liberating the uterus from its adhesion, and at the same time removing the appendages or as much of them as are diseased; and, sixth, fastening the uterus to the abdominal wall—all of which can be done in a little over an hour. My results in such cases, as I stated at the outset, have been most gratifying.

The objection is sometimes made that the uterus is a movable organ and should not be fixed in an immovable position. While this may be admitted, I am in a position to state that ventrofixation does not put the uterus in an immovable position, for in the one and only case of failure, which a year later necessitated my reopening the abdomen, I had an opportunity to see that the uterus was hanging by a cord as thick as a lead pencil, extending exactly from the place where I had fastened it behind the pubis to the anterior surface of the uterus. In many cases, on exam-

ining the patient with the Sims speculum I could see the normal amount of to-and-fro movement of the organ taking place. The union allows free movement to the uterus and in no way interferes with pregnancy.

Just a few words now as to the method of operating. After the usual aseptic precautions a small opening is made in the abdomen, about one and a half or two inches being sufficient to admit two fingers, with which the uterus is lifted up, the adhesions torn away, if there are any, and the ovaries and tubes examined. While held up by the fingers the fundus is caught by the bullet forceps just in the centre and held in the incision, while a space of a square inch is scarified with the point of the scalpel. It is then lowered for a moment while the corresponding surface of the abdominal peritoneum is treated in the same manner, thus insuring broad and strong adhering surfaces. It is then drawn up again, while two well-sterilized silk ligatures are passed through the fascia, then through the anterior wall of the uterus, and then through the fascia of the other side, tied and cut short to be left in permanently. In two cases I used silkworm gut for this purpose, but this caused trouble and I abandoned it; in more than half the cases I did not leave any permanent ligatures in, and it was in one of these that the failure occurred. The abdominal wall is then closed according to the taste of the operator, my preference being given to the through-and-through silkworm-gut sutures, which I invariably leave in one month, by which time the exudation tissue has formed and has become thoroughly organized and strong.

TREATMENT OF DIPHTHERIA UPON ANTISEPTIC PRINCIPLES,¹

BY

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It is somewhat singular that, after the achievements of external antiseptics within the last twenty years, application of the simple principle—no infectious organisms, no disease—to *internal* dis-

¹ Read before the Medical Association of New York City, December 17th, 1894. With some additional notes.

eases has made so little progress, in spite of the fact that, if properly carried out, the results are no less satisfactory.¹

At the time when the first article² on the use of boracic acid for local, and quinine for internal, antiseptics was published, the results for two years had been uniform and reliable. They have been confirmed by the experiences of nearly two years more, and it would seem that recent bacteriological and physiological researches also sustain them.

Very extensive experiments made in the seventies gave among other results the following: That while the solid—that is, the non-volatile—acids, boracic, oxalic, and others, *do* prevent the growth of bacteria, including coccobacteria and the bacilli of putrefaction, and further that of infusoria and other lower animalculæ, they do *not* prevent the growth of fungi, such as oidium, torula, penicillium, aspergillus, the mucors, etc.; that the effect of a chemical upon these fungi supplies no criterion as to its effect upon bacteria; that in their chemical reaction bacteria differ essentially from fungi and are not therefore schizomycetæ. They confirmed the statement of Delondre³ that *all* acids and acidulated liquids antagonize the life of bacteria and lower animalculæ, and are therefore all antiseptics, while neutral or slightly alkaline media favor their development. Volatile acids are inimical to both fungoid and animal life.

I have been unable to experiment upon pathogenic bacilli, but numerous statements by others show that their reaction is similar to that of other bacteria, and that their development and destruction depend upon similar conditions. According to Tyndall, however, pathogenic germs possess a higher resistance.

These facts show that boracic acid *is* an antiseptic⁴—weak, to be sure, yet the results are practically the same whether we use weaker antiseptics in more concentrated solutions or the stronger greatly diluted. In addition, the conditions within the living body, and probably, too, the lesser resistance of freshly developing germs, seem to aid materially the antiseptics. Boracic

¹ For the result of thorough internal antiseptics in a case of typhoid fever see Medical Record, April 29th, 1893, p. 540.

² Medical Record, February 25th, 1893, p. 251.

³ Séances de l'Académie des Sciences, 1863, II. semestre.

⁴ Turbidity of solutions of boracic acid in common water, due chiefly to the presence of lime salts, is overcome by the addition of from one-eighth to one grain of alum to each pint of solution.

acid has also these advantages, that even in the most concentrated solutions it has no injurious effect upon the most delicate membranes of higher animals, but destroys the microbe. It dissolves some fatty materials, though less than its sodium salt.

The destructive action of quinine upon lower organisms, proven beyond doubt by the earlier observers,¹ has been denied in the case of pathogenic bacteria upon culture experiments. This error, like that concerning iodoform, can only have arisen from overlooking the insolubility of quinine in culture gelatin. However finely divided, the gelatin envelops these substances and thus prevents their action upon the micro-organisms. Modification of the experiment by the use of blood instead of gelatin would have shown that these drugs readily sterilize this physiological fluid, especially at the temperature of the body.

But why shall we use in diphtheria these drugs and internal antisepsis, when the cause of all the systemic disturbances and eventual death are the ptomaines evolved by the bacilli harboring upon and within the tonsil and adjacent structures?

The first step in the diphtheritic drama is the specific bacillar infection. The disease begins with *that*, not with the appearance of the false membrane. Preceding the latter we have the stage of incubation, or, as I should for practical reasons prefer to call it, the premembranous stage.

It will often be observed in all stages of progress upon examination of the throats of *all* children in a family where one is encountered with patches.

In the earliest stage we see, in many cases, but one tonsil somewhat acuminate, just beginning to enlarge. A little later one tonsil, more enlarged than its mate, begins to look angry; there is a slight rise of temperature above 99°, and occasionally slight gastric trouble. Ultimately one or both tonsils become very large, highly inflamed, covered with a glairy mucus; temperature now above 100°; pulse about 120; head drooping, often toward one side; eyes listless; the appetite lost entirely within the last six to twelve hours of the premembranous stage. The bacilli should already be easily detected.

This premembranous stage derives its special importance from the ease with which it yields to treatment, so that a second membranous case in the same family may either be entirely prevented, or if at all developed be quickly cured. Even without

¹ Nothnagel, "Arzneimittellehre," p. 347.

a full-fledged case in a family these symptoms often alarm parents sufficiently to make them send at once for the family physician, who then can easily abort a case of threatened diphtheria in from thirty-six to forty-eight hours.

Observation of the succession of cases in the same family furthermore suggests that considerable *propagation* of the disease emanates from or during this early stage.

The gastric disturbances of the earlier stage, slight at first, deserve attention on account of their probable origin. It will generally be agreed that ptomaine intoxication can hardly at this time originate from the tonsil, but the infection could, as stated, *not* have occurred without the presence of bacilli in the mouth, and, actually, bacilli floating free in the mouths of healthy children have already been noted by Löffler. Our imagination is much less taxed by the assumption that these derangements are caused by passing food carrying some such free floating bacilli into the stomach, where the freed toxic products could directly give rise to the gastric symptoms, rather than by ascribing to them a reflex or other complicated origin.

Protected, for instance, by milk coagula, both the bacilli and the toxalbumin could easily escape the influence of the first heavy influx of acid gastric juice; and, besides, it has been demonstrated by Gilbert¹ by actual experiment that the hydrochloric acid of the stomach, either free or combined, is unable to sterilize food completely. After development of the membrane with the simultaneous enormous numerical increase of the bacilli, which in usual microbe fashion aggregate in the layers nearer the air, hardly a swallow can fail to carry some into the stomach, which by this time is thoroughly disordered.

The commonly administered acid chloride of iron seems to destroy the bacilli and their products in some of these cases, in others it does not. The use then of an antiseptic which, unlike the iron salt, does not decompose in the stomach, and which, additionally, is capable of resorption into the portal system and the general circulation, may have the desired effect and account for the usual clinical result of the administration of quinine in sufficient quantity and for sufficient length of time.

But for some curious observations this chapter might well close here.

These are that Oertel, Welch, Flexner, and Abbott—from the

¹ Tribune médicale, 1894, p. 917.

latter of whom some sentences will be borrowed—observed in various parts, notably the glandular system and the liver, of bodies of individuals who had died of diphtheria, necrotic foci with intensely stained dots arranged sometimes in clusters of various forms, sometimes in fine just discernible lines, or granular, strewn dust-like through the field of hyaline necrotic tissue. If it were possible to connect these with the equally intensely stainable dots in the bulbar ends of the Klebs-Löffler bacilli, precious revelation would result.

Similar granular and dotted matter occurs in coccobacteria. In the study of the microbe of the horse epidemic of 1873 there were observed by myself dots of all sizes, from the most minute to those of the parent organisms, the largest of which, one-fiftieth of a millimetre in diameter, contained these dots mostly in daughter cells impacted within the parent, and some of these parents could be seen with a resorbing, bursting cell membrane, allowing the daughter cells with their various sized dots to float out.

The pathogenic bacilli, usually believed to multiply by cell division only, are assigned the anomalous position that, unlike every other living organism, they should produce no spores. In contradistinction, if these highly stainable dots in the microbial foci should be derived spore-like from the equally stainable dots in the expansions of the Klebs-Löffler bacilli, this would explain:

How, in spite of only sporadic occurrence of bacilli in the system, others, disintegrated, may leave behind them these traces of their previous existence and their especial accumulation in the lymphatics and liver;

Why complete sterilization deprives bacilli of their micro-biotic power;

Why antiseptics diminish and eventually destroy the virulence of bacterial extract;

Why coagulating albumen or a freshly forming insoluble salt precipitates from this extract the necrotic or toxic element (an analogous process to those used for the precipitation of germs in fermentable and putrescible liquids, such as wines, etc., by rapid or slow coagulation of albumen or by certain salts);

Why, furthermore, some bacilli are more virulent than others, the former being the older and further developed;

Why the virulence of cultures diminishes with repetitions, like the fruit-bearing quality of a tropical tree in a hot-house.

It might further raise the question, What would be the effect of similar necrotic processes in the brain?

Most important of all, it would urge with emphasis suppression of the disease at the earliest possible opportunity, or, if this be impossible, by efficient antiseptics sufficiently prolonged. Still, all this must remain hypothetical with the present development of our microscopes, and can only be considered, and is only presented, as a suggestion.¹

Now as to the antiseptics used. The boracic acid is used in the form of boroglyceride. The boroglyceride and alum solution, after Wylie's formula, was first resorted to in a case where previous application of mercuric chloride and then of hydrogen peroxide (both of which decompose upon application) had thoroughly hardened the tonsils, which then softened. The creasote was added later for stronger antiseptics. It is rational to suppose that the boroglyceride, a stronger hydragogue than plain concentrated glycerin, abstracts from the mucosa and submucosa with the fluid a number of bacilli then subjected to the antiseptics.

The formula for the compound is: Add to four drachms of fifty per cent boroglyceride a solution of two drachms of alum in nine drachms of pure concentrated glycerin, made by boiling, then add five drops of creasote. Of this I always carry a two-drachm vial and a camel's-hair brush four inches long. Only two or three drops are used for each application: and parents can be instructed in the proper mode of application, which is a gentle touch. The brush should be well cleaned after using, at least by running water from a hydrant with subsequent

¹ That much of the alleged ptomainic action of the Klebs Löffler bacilli should really be functional disturbances depending upon tissue changes by other microbic action would not be a novel supposition. The idea that the ill effects and inflammatory antitoxic sequelae, cutaneous, pneumonic, and nephritic, depend upon germs introduced with the serum, has been exactly paralleled by Czerny and Moser's demonstration of the effects of bacilli, coli communis and streptococcus, entering the circulation from the intestinal tract in gastroenteritis. That germs, whatever their origin may be, can be scattered and remain in the system of higher animals, even in the capsular joints, is shown by fetid decomposition upon their development after death, their immediate penetration being impossible after cessation of the life currents. That bacterial development does not always imply generations of toxalbumins is proved by the harmless consumption of carne secca, strong game, living cheese, etc. Incomplete sterilization has in cases led to incorrect ideas concerning bacterial toxins. Roux and Yersin destroyed the toxicity of diphtheritic bacillar extract by acidulation with lactic and tartaric acids.

flushing of the basin, or better yet by a five per cent carbolic acid solution. It should then be well dried to avoid decomposition of the boroglyceride by water.

These applications are usually made once every hour until complete disappearance of the false membrane; after that, four or five times a day until the tonsil decreases perceptibly in size. Usually two such two-drachm vials suffice for a membranous and one for a premembranous case. In the latter, applications once every two hours are usually sufficient. In a few very threatening cases the applications were made once every half-hour for a number of times. The second or third application is usually followed by dissolution of a large part of the membrane, but a few small specks or a whitish infiltration persist for several days.¹

Slight laryngeal complications require no other treatment; for more serious, sprays were used of a solution of chlorate of potash and boracic acid² in the intervals between the pencilling; once also hot wet packs to the throat, at first frequently repeated.

The quinine is administered best in solution with hydrochloric acid after this formula:

R Quininae sulphatis.....	3 i.
Solutionis acidi muriatici.....	q. s. for solution.
Syrupi.....	3 i. or 3 ij.
Water.....	q. s. for 3 ij.

Dose: A teaspoonful every three hours.

Occasionally the quinine will have to be given in pill form or suppository.

In severer membranous cases a few doses are given during the first one or two nights, in addition to those during the day, until the temperature falls to below 102°, but the full day dosage is continued until it is near 99°; after that, for a few days, a teaspoonful three to two to one times a day. This dosage may seem large for children under 5 years of age, but it is well borne, and in only a few cases did it become necessary to counteract symptoms of depression by the addition of a few drops of sweet spirit of nitre to each dose of the quinine. Premembra-

¹ A further valuable property of this preparation is that, unlike the iron salts, it leaves the tissues and their morbid changes or productions of a natural color.

² Spraying with this or the boroglyceride diluted with twice its volume of water cleans the nose.

nous cases receive, according to their gravity, from one-half to two-thirds of the regular dose of the quinine, with the result, as already stated, of recovery in from thirty-six to forty-eight hours.

Membranous cases recover usually in from five to six days. In only one instance did a membranous case last longer than six days. It was a little girl of strumous diathesis, who when the primary diphtheria had nearly subsided developed suddenly a suspicious parotitis, first of the right and a few days later of the left side, with persisting reappearance of small membranous foci. During nearly the entire course of thirteen days the quinine was continued in full dosage, but nitre had to be given additionally.

As to results, during nearly four years of this treatment there were lost, out of a few over one hundred cases, four, under the following interesting circumstances:

The first was a boy, aged 9, who so firmly closed his teeth that medical treatment was absolutely prevented for four days up to within two and one-half hours before death. The result had been predicted.

In the second case I was, after the first inspection at a dispensary, not allowed to see the boy, a 3-year-old, for nine days. An improvement had occurred, then a relapse after this disobedience of instructions, and the child died.

The third was an infant 13 months old. There were in this family five more children from 5 years up, all born in Europe. Three more children born here had died—2 to 7 months old—from cachexia. The infant, nourished artificially, lived under nearly continuous medication, but ultimately developed a capillary bronchitis. On the fourth day of this an elder brother developed diphtheria. The infant followed a few days later in spite of isolation, and then, developing severe apnea, died. Three more children in the family developed diphtheria, but all made good recoveries.

The fourth case, aged 3, had been previously treated by another physician with apparently pure tincture of iron. Everything in the month was swollen and partially abraded, so that the application of the boroglyceride was rendered exceedingly painful and it had to be replaced by a milder agent. The quinine, as well as food, could be administered only by the rectum. Intubation was out of the question, tracheotomy was refused, and death supervened.

It would seem that the first two cases cast no blame on the method, nor probably also the third, while in the fourth case tracheotomy might have been successful.

Of other complications a few occurred with scarlatina. These gave the impression that when the patient was already under the influence of quinine for diphtheria the eruption was exceedingly evanescent and localized, with very rapid recovery, but if scarlatina preceded the diphtheria the cases would last nearly fourteen days.

Of sequelæ none have ever been noticed.

The usual course of the disease and the rapid and prompt recovery under this treatment will best be demonstrated by the histories of a few cases, about whose outcome apprehensions would ordinarily be felt by the practitioner taking them in charge.

A. G., æt. 4, when first seen on December 2d, 1892, showed diphtheritic membranes covering the right tonsil completely, the uvula partially, the left tonsil partially, and extending downward behind the posterior pillars into the pharynx. Pulse 146, temperature 103.8°. Treatment, pencilling with the boroglyceride compound every hour, twice during night; a teaspoonful of the quinine solution every three hours during the day and twice during night. December 3d: Pulse 124, temperature 102.2°; night treatment discontinued. December 4th: Pulse 111, temperature 99.6°; hard to keep the boy in bed. December 5th: Pulse 104, temperature 99.1°; all parts free from membrane, but tonsils yet enlarged; appetite good. A 3-year-old sister had, on the 3d, premembranous symptoms which under milder treatment disappeared on the 5th.

L. K., æt. 6, diphtheritic croup. Bacteriological examination "mixed." First seen on January 5th, 1895. Previous throat troubles. The three rooms occupied by the family heated by one small cooking stove; strong cold draughts at three feet from the window on the blizzard days; water pipes frozen throughout the house. February 9th: Found with scarlet fever, complicated on February 11th by a very severe croupous laryngitis, persisting till the 15th. On the 13th diphtheritic membranes, receding till the 17th to a whitish induration which disappearing on the 19th left a circular erosion with sharp, partially pointed edge. Desquamation began on the 20th. Faint albuminuria. Treatment as before.

J. L., male, æt. 17; first seen on January 31st; greatly swollen tongue, covered with thick, firmly adhering fur; throat filled with a glairy and flaky mucus; tonsils hidden. February 3d: Tonsils now visible, with membranes of true diphtheria. February 7th: Tongue free from fur, with thick, broad longitudinal ridges. The temperature had become normal on the 6th; last visit on the 9th.

While the boroglyceride compound can perhaps be replaced by some other preparation, a substitute for the quinine in doses sufficiently large will hardly be obtainable. With, as stated, never any sequelæ, their use overcomes the deficiencies of antitoxine. With prompt success in every case, barring such exceptional and uncontrollable occurrences as in the four described, the writer would attribute a fatal result in a case thus treated from the beginning to some serious neglect, and thus may well be pardoned the repeated recommendation to the profession of this simple, gentle, and inexpensive treatment.

266 WEST 42D STREET.

A LIGAMENT-CARRIER FOR ALEXANDER'S OPERATION.

BY

J. FRANK, M.D.,

Surgeon to the St. Elizabeth and Cook County Hospitals,
Chicago, Ill.

(With two illustrations.)

ALTHOUGH the amount of time required to complete most operations does not form an essential feature of the same, the idea of shortening and simplifying whenever it is possible should be favored, especially when the operation takes a considerable length of time, as in Alexander's, it really being a double affair. Taking the factor time and several other drawbacks of the old method into consideration has led me to devise a new ligament-carrier which may be used in the performance of the direct method of shortening the round ligaments, which I first demonstrated at the St. Elizabeth Hospital in the year 1889, Drs. H. P. Newman, M. H. Luken, E. McCullom, and several other medical gentlemen being present.

Formerly to buttonhole the ligament in the fascia an ordinary

needle (double-threaded) was used to carry the silk which threaded the ligament, this being the first step of the anchoring of the cord. Now, it will be readily perceived that an ordinary needle will not effect much of an opening through as dense a fascia as is met with in this locality, hence quite an amount of force was necessary to drag the delicate ligament through. This pulling on the ligament to bring it through the fascia caused a great deal of laceration, and the constriction of the fascia around the ligament sometimes produced a sloughing.

For the benefit of those who are not familiar with the various steps of the operation a brief outline of the same will follow :

An incision an inch or an inch and a half in length is made midway between the anterior superior spine of the ilium and the spine of the pubes, a trifle above Poupart's ligament, down to the fascia; this is now incised for the distance of half an inch in the direction of the fibres; the transversalis muscle, which presents itself, is pushed back from Poupart's ligament, and a



Frank's round-ligament needle.

blunt hook the size of an ordinary buttonhook is introduced into the preperitoneal fat and the ligament hooked out; as a rule this can be done at the first trial, if the incision is made in the proper place. The ligament being found, it is loosened and made to run until the uterus can be brought to a satisfactory position. Instead of anchoring the ligament as described above, I now use my needle in the following manner: it is made to pierce the fascia from one-quarter to one-half inch from the lower angle of fascial incision, the loop of the needle is raised (*a*), the ligament slipped into the eye, the spring loop drops back into position, forming a perfectly smooth eye, and the needle is pulled through the fascia, easily carrying the ligament with it and leaving a sufficiently large opening to obviate the danger of strangulation.

The ligament is unthreaded from the needle and is drawn through the opening made until it becomes taut, when it is carried back to be anchored at the upper end of the incision

between the skin and the fascia; the parts are brought together in the usual manner, and, if deemed necessary, small drainage is provided for in the most dependent part.

The needle was made for me by Messrs. Sharp & Smith, the cut representing its natural size, which may be varied according to the different fancies of the operator.

17 LINCOLN AVENUE.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Meeting of May 24th, 1895.

The President, FRANKLIN H. MARTIN, M.D., in the Chair.

EXHIBITION OF SPECIMENS.

I. PAPILLOMATOUS CYSTOMA.

DR. HENRY T. BYFORD.—This pretty specimen I exhibit, to describe the particular method by which it was removed.

The tumor, although it made an enlargement above the pubes, was removed through the vagina and without removal of the uterus. It was firmly adherent. I opened the cul-de-sac of Douglas and tried to enter the abdominal cavity, but I could not do so on account of extensive adhesions, so I thrust a pair of scissors into the cyst and evacuated over a pint of pus. I then succeeded with considerable difficulty in enucleating it. The bed bled quite freely before it could be tamponed with iodoform gauze, when the hemorrhage stopped. The recovery was uninterrupted.

II. UTERUS AND TUMOR REMOVED THROUGH THE VAGINA.

The other case was more complicated. The specimen consists of the uterus, a portion of the tumor that was in the cul-de-sac, and a mass of trabeculated tumor which shows its papillomatous structure. The microscope shows the structures of ovarian cystoma, fibro-myoma, and malignant papilloma, or carcinoma. The fibro-myomatous character of the mass in the cul-de-sac led me to consider the tumor a uterine fibroid or sarcoma. The uterus and this tumor seemed to form one mass—in fact, I was surprised, even after going far enough to remove the uterus, to find the tumor unattached. The mass in the cul-de-sac extended across the cervix backward, and a mass in the pelvis filled both broad ligaments and was infiltrated with papillomatous tissue. In cutting into the cul-de-sac I found I could not enucleate the tumor very easily, as it was adherent to the rectum, and I was afraid I would tear the rectum. I therefore removed

the uterus and then found that I still had insufficient room, as the tumor extended high up, so I made a suprapubic incision. The broad ligaments were extensively infiltrated and trabecular tissue extended high up on the right side. I found it inadmissible to enucleate the universally adherent tumor, on account of profuse hemorrhage that followed every attempt at removal. I therefore pushed my broad-ligament forceps up from below on either side of the pelvis, and on the left side managed to get one of them over the infiltrated infundibulopelvic ligament. On the right side I tore the tumor loose from its connections and then clamped the ligament. After taking out the cyst I had to take out similar masses from the cul-de-sac. I packed the pelvis from above, and put the end of the gauze down to the vagina and pushed it all down into the pelvis so that it would not extend up among the intestines and yet would control the bleeding area from below. The patient did nicely until the end of the fifth day, when she began to pass feces through the vagina. That was three weeks ago. Four days ago that stopped until to-day, when I believe there was a slight passage of feces through the vagina. In other words, the adhesions were such that I undoubtedly ruptured the walls of the rectum. But this was supported by the iodoform packing until that was removed, when the feces escaped into the vagina. The patient did not show any bad effects from the temporary fecal fistula.

TUBO-OVARIAN ABSCESS.

DR. T. J. WATKINS.—This specimen is exhibited for the purpose of describing the method I employ for removal of these abscesses when the disease involves the uterine portion of the tube. The specimen consists of the *entire* Fallopian tube, the ovary, and a portion of the uterine wall. After separating the adhesions of the tube and ovary the ovarian artery is ligated external to the tube and ovary. The tube and ovary are now excised by division of the broad ligament from a point just external to the tube and ovary to the uterus, and the dissection is carried into the uterus to a point beyond the disease. All bleeding points are caught in artery forceps. Very little hemorrhage occurs except from the uterine artery, which I sometimes ligate before severing. Ligatures are now placed, the forceps removed, and the wound closed with a continuous suture.

Advantages of the operation :

1. All diseased tissue is removed.
2. Large masses of tissue are not ligated.
3. No raw surface remains to form adhesions.
4. The use of large sutures and ligatures is unnecessary.

DR. T. J. WATKINS.—The Society is under obligations to Dr. Byford for exhibiting these very interesting specimens, and he deserves the congratulations of the Society for the very unique

methods employed and for the results obtained. There is probably no doubt that the method used by Dr. Byford is far preferable to abdominal section* because of perfect drainage which is obtained. Dr. Byford, we all know, has been doing for a long time much pelvic surgery through the vagina, and a good many of us probably thought he was in error, but of late many operations are being done through the vagina.

DR. H. P. NEWMAN.—Undoubtedly the method of dealing with this growth was the best that could be done under the circumstances.

Very often the pelvis may be opened with perfect impunity and with advantage to the patient when the abdominal cavity is under operation, and certainly in this case it was the only method that could have been pursued with safety.

Dr. Watkins' case suggests the subject of vaginal section, not alone for pelvic abscess, but for the removal of the appendages and the uterus.

In his case the infection must have been present in the uterus also, and the question of entire extirpation of that organ would be one to consider. It is certainly an interesting case, and I am glad that it has been presented here.

DR. T. J. WATKINS.—Hysterectomy was not performed because intestines were adherent to the other broad ligament consequent upon removal of the appendage on that side some six months previously.

DR. T. J. WATKINS read a paper entitled

VAGINAL SECTION AND DRAINAGE FOR PELVIC ABSCESS.¹

DR. HENRY T. BYFORD.—Dr. Watkins has covered the ground quite completely and his conclusions are just.

There are two or three points of great interest that have been brought out. The first is that these abscesses that follow labor or abortion are not all diseases of the tubes or ovaries.

Another interesting point brought out was the fact that intestinal adhesions are not always troublesome and do not always seriously inconvenience the patient.

Still another interesting point is that the intrapelvic pus may, before it is taken out, become practically sterilized and really may not require enucleation of the sac. I remember a case in which I opened the abdomen and found an abscess containing an ounce and a half of pus in one of the tubes, but the uterus, appendages, broad ligament, and intestines were matted together. After aspirating the tube and putting a catgut stitch over the peritoneum to prevent leakage, I examined carefully, putting one finger into the vagina and the fingers of the other hand into the cul-de-sac of Douglas by way of the abdominal cavity, so I might know whether there would be a chance to

¹ See original article, p. 207.

drain at another time from below. She got well from this procedure, which was not much of an operation, and two weeks afterward I had her anesthetized, took a curved trocar about one-eighth of an inch in diameter, and, after pressing the parts down from the abdominal walls, I passed it up from below deeply into the mass. I moved it about some, but nothing came but a little blood. It has not yet, after several months, returned.

I had another case recently in which I came down upon similar tissue. I did not like to put the patient to very great danger, so instead of tearing loose all these adhesions I removed the other ovary, which was diseased and adherent, then stitched the pus sac to the abdominal wall without opening it except to aspirate and remove two ounces of pus. A week later I opened with a knife and got but three drachms. The cavity contracted so that it was scarcely large enough to allow the finger to move in it loosely. That was three weeks ago, and it is all healed except a little sinus from the top less than an inch deep. In other words, the abscess proved to be very small after it was evacuated, and contracted immediately. In complicated cases it is sometimes better to first evacuate the pus from below, and, if necessary, maintain an opening until suppuration ceases. We can more safely remove them afterward, if the symptoms still require it.

Dr. A. J. LYONS.—I have had only one case of pelvic abscess which I have operated through the vagina, but I have had a great many such cases which could have been cured by vaginal section just as well as I cured them by abdominal section, and without subjecting them to the major operation. I know two cases that died which, I believe, could have been cured by such an operation as Dr. Watkins has described. Dr. Byford saw one of them with me, but her condition was then so bad that it would have been useless to operate. I think if I had had the courage, or had our masters been teaching us at that time to do simple vaginal section, I would have probably saved the patients.

The operation Dr. Watkins advocates is in the line of conservative surgery, and I think it will entirely take the place of vaginal puncture. I do not believe conservative operators will feel as safe in introducing the trocar and canula as they will in doing vaginal section, because in the latter operation not much cutting is required to make a slight opening through the vaginal wall and then, as Dr. Watkins says, divide all the tissues above that with the fingers until the abscess is reached. I have had the pleasure of seeing one of the two cases the doctor reports as having a sinus now remaining, and I do not see how he could have operated in any other way. The adhesions were certainly extensive, and I think if he had done an abdominal section the patient would not have recovered. I feel much gratified at

having heard the paper, and am sure we ought to advocate frequently and employ this operation.

DR. S. L. WEBER.—I have done both vaginal section and vaginal puncture for pelvic abscess, although vaginal puncture has been tabooed this evening. I have done vaginal puncture for years, and in fact I did it this evening before coming here.

I do not think that vaginal puncture for pelvic abscess is so dangerous as indicated in the paper. I have seen a large number of puncture operations, and I have done a large number for post-*puerperal* hematomata and have never had any accidents. The ureters may, however, be punctured, or a large blood vessel may be injured, but I do not think there is much danger if in puncturing a curved director be used and left in place until the opening is dilated and a drainage tube inserted. If the abscess is large I do not think there is danger from puncturing; if it is small, however, great care is necessary. Puncture is a certainly safer and easier operation than vaginal section.

DR. H. P. NEWMAN.—This is an extremely interesting and important subject. The essayist has covered the ground so thoroughly that there is little left to be said except to verify his statements and to encourage work in this direction. It is a conservative method of dealing with a class of abscesses which have not infrequently resulted fatally or left the patient in a maimed and mutilated condition for years. It affords a means of preserving life, and in a very large percentage of cases promotes complete recovery. Any remaining disease of the appendages can be removed by subsequent operation. I was glad to hear Dr. Byford speak of cellulitis developing in *puerperal* patients, a class of cases that ought to be treated in this way and no other—that is, either opening from the vagina or possibly subperitoneally in the groin, preferably through the vagina. I have had a considerable number of these cases which have been treated successfully; all have recovered, and most of them without any unpleasant symptom or any sequelae. In regard to the advantages, Dr. Watkins has omitted to mention one of importance—that is, that in operating through the vagina he avoids the abdominal scar and the subsequent danger of hernia. This is a point that has been made a good deal of, and rightly, as an advantage of the vaginal over the abdominal method. Not only this, but the danger from shock is materially lessened by the vaginal operation. It is, comparatively speaking, a minor procedure, for when the peritoneal cavity is not opened there should be little or no danger. Speaking of adhesions, some are not of serious moment, and this leads me to refer to a case I operated upon last Monday where adhesions were made use of as a permanent support to the uterus. It was a case of *tubo-ovarian* disease, and the adhesions were so well organized and so favorably located, extending to the anterior abdominal wall, that I preserved them as a means of uterine support. The drainage

spoken of is evidently the best in this class of cases where there are large quantities of pus, but in cases of simple hematoma which the doctor mentioned a Mikulicz drain or simply packing with gauze might have been sufficient.

DR. F. H. MARTIN.—I have a specimen to present which illustrates one point I would like to emphasize in discussing the paper. It was removed from a case of pelvic abscess. Monday morning I was called to see the case by Dr. Froom, and was asked to bring my instruments to operate on a pelvic abscess. I did not take my instruments, but went to see the patient. The woman had not borne children, there was no history of gonorrhea, but there had been a history of endometritis and long years of tinkering treatment. Sounds had been passed and applications had been applied to the endometrium. After one of these treatments she developed considerable temperature and pain in the side, followed by pain in both sides, and had what she called inflammation of the bowels. About two weeks ago, during menstruation, she sat on a stone and caught cold; this was followed by pain and temperature, and she went to bed. Dr. Froom was called, examined the pelvis, and found what he considered a pelvic abscess. He called me in consultation, with the idea of puncture. I examined the pelvis, and posterior to the uterus found a well-defined fluctuating abscess in the vagina. I told the doctor that in all probability there were two abscesses, that the tubes were probably infected, and that if they were infected to a degree to give rise to inflammation and suppuration, to that extent in all probability they were infected by gonorrheal poison. In that case both tubes would be infected. The only thing to do, if we went into the vagina at all, would be to enucleate everything there was—uterus, tubes, and ovaries. With some reluctance the doctor decided to accept my opinion, and I advised abdominal section. We put her into the hospital immediately, and Tuesday morning did the operation at the Woman's Hospital. On opening the abdomen I found well down in the cul-de-sac a suppurating tube which was as large as a tumbler and was adherent in every direction. It was covered with adherent intestines to such an extent that I could not make out the uterus, tubes, or anything when I opened the abdomen—one of those cases we all see so many of. The local peritonitis had been recent. In about a minute I succeeded in enucleating perfectly this abscess and brought it up to the mouth of the abdomen, after packing in gauze to prevent infection of the intestines. The broad ligament was tied externally to the abscess with catgut, then the tube was taken off, next the uterus, and the opening whipped over with catgut. Then turning to the other side I found an exact duplicate.

I believe cases like this should be handled through an abdominal incision, because the mortality is less by going in from above—in other words, abdominal incision and enucleation of

this abscess, the thorough cleaning out of the cavity, sewing with an absorbable stitch so that if it should become infected it will be absorbed. Every portion of diseased tissue is removed, the tubes are enucleated down into the horn of the uterus, the part whipped over so that it is completely isolated from the uterus, and the uterus is thoroughly curetted. The drainage-tube in this case was taken out in twenty-four hours. The patient, who before had a temperature of 102° , has had none since, and she probably will be well in a couple of weeks and able to walk. The lesson to draw from this specimen in connection with Dr. Watkins' paper is obvious. The radical statement made by some of the rampant gynecologists in the East, to the effect that all pelvic abscesses may be enucleated, is not sustained by facts. It is now recognized by all except a very few that subperitoneal abscesses in the broad ligament occur as a direct result of puerperal septicemia. They usually point in the pelvis as distinct fluctuating masses, and the patients are usually in a low state physically. These cases may be treated by vaginal incisions with advantage. They are usually unilocular, and may therefore be perfectly drained through one incision. But we must remember that the tubes may be infected at the same time as the cellular tissue, even in puerperal cases, so even here we are not sure we are getting all of the suppurating tissue. The tubes may still be infected, and we may have an operation to do elsewhere within a year.

If the paper of the evening is carefully read and followed it will do good. The doctor has hedged on every point and has made clear his position. His position is all right, but the subject of the paper will lead the careless to misinterpret its contents; many who read this paper will simply think of Dr. Watkins as advocating vaginal incision for pelvic abscess, and some will forget the points he has warned us upon. The consequence will be that, every time a pelvic abscess is found anywhere, one of these men who is afraid to do abdominal section and therefore not fit to do vaginal incision will plunge a trocar or some needle into the abscess and in ninety-five cases out of a hundred disaster will result. Therefore I believe the paper will do harm in the fact that it will not be interpreted properly. It seems to me the abscesses that can be opened from the vagina in preference to the abdominal route, where enucleation should be done, would be limited to about ten per cent of all cases.

Dr. Newman says the vaginal operation can be done by almost any one. That is the whole gist of the argument against the paper. If the paper will be taken as presented and all the points read carefully line by line and the precepts well digested, no one can go astray. Men who are not capable of doing good abdominal surgery have no right to do vaginal section. Now, I believe vaginal sections for pelvic abscesses may be done in about the

following conditions: 1. The only cases that should be operated on in this way are those which cannot be removed from above. 2. Those cases in which the tubes, ovaries, and uterus can be removed per vaginam, as an operation of election. 3. A puerperal abscess of large size in the broad ligament. 4. Suppurating broad-ligament cyst, hematoma, or extrauterine pregnancy.

DR. T. J. WATKINS, in closing the discussion, said: I have not much to say except to thank you for the kind manner in which you have received the paper and for the thorough discussion which you have given it. I probably did not describe the pathological findings with sufficient clearness in the case referred to by Dr. Newman where he thought gauze drainage would have been preferable to rubber-tube drainage, or he would not have criticised the method of drainage. The lining of sac wall in this case was covered with necrotic tissue, which sloughed and passed through the drainage tubes, which could not have occurred through gauze drainage.

The substitution of vaginal section for vaginal puncture is an exceedingly important one, for the dangers of puncture which I mentioned are given in all text books on gynecology, and if these dangers were not important they would not be so generally recognized. I have personal knowledge of two cases where the uterine arteries were injured by puncture with fatal results. I also know of cases where the bladder has been punctured, and others where the rectum has been punctured. I see absolutely no advantage in puncture over section, but many disadvantages, which were mentioned in my paper. I cannot appreciate how the case reported by Dr. Martin affects the position I occupy in my paper. If vaginal section should have been done in his case the abscess low down could have been drained, made as thoroughly clean as possible, and thoroughly packed with gauze, the other abscess could have been treated by vaginal section, by abdominal section, or by vaginal hysterectomy, and in either event the vaginal incision would afford an excellent avenue for drainage.

The point made with reference to the harm that may result from advocating this operation applies with equal force to all operations. I have heard Dr. Emmet say time and again that his operation on the cervix has done more harm than good, on account of its abuse, and yet no one of us regrets that he devised that operation. The same may be said of operations upon the vermiform appendix, of Tait's operation for the removal of diseased tubes, and of all operations. The abuse of operations does not make them useless. I have employed vaginal section in about fifteen per cent of the pelvic abscesses upon which I have operated.

Official Transactions.

T. J. WATKINS,
Editor.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of May 16th, 1895.

CHARLES B. PENROSE, M.D., *in the Chair.*

DR. GEORGE E. SHOEMAKER reported

A CASE OF UTERUS CORDIFORMIS; OTHER ANOMALIES.¹

DR. SHOEMAKER.—I removed the buried worm-gut suture a few days ago from a case of recurrent umbilical hernia in the person of a very obese woman upon whom I operated two years ago. The silkworm gut was absolutely unchanged. The ring formed by the suture hung loose in the tissues, giving absolutely no support. The filament of gut was encapsulated in a tubular capsule not more than one line in thickness. It was producing no irritation whatever, but doing absolutely no good. I have continued using the buried worm suture, but wish to make this point as to the absence of support after the period of a few weeks.

THE LIGATURE IN OÖPHORECTOMY.²

DR. PENROSE read a paper on this subject, giving diagram of method of procedure.

DR. SHOEMAKER.—I wish to ask Dr. Penrose whether he uses blunt or sharp needle, whether he sews or hooks.

DR. PENROSE.—Blunt needle.

DR. LAINE.—Does the broad ligament retract—that is to say, between the two ligatures? I would like to ask whether it is ever necessary to whip the edges together.

DR. PENROSE.—It is necessary in some cases, as in some cases of abdominal hysterectomy.

DR. B. C. HIRST read a paper on

DERMOID CYSTS AND PREGNANCY,

and called attention to the way in which the cyst was prepared—stuffed with cotton and covered with shellac. On removing from the alcohol, thoroughly dry and shellac it, and it will remain indefinitely preserved.

¹ See original article, p. 215.

² See original article, p. 221.

DR. E. P. DAVIS read a paper entitled

DRAINAGE IN PUERPERAL SEPSIS, WITH A REPORT OF CASES.¹

DR. PENROSE presented specimens of

I. HEMATOSALPINX AND BROAD-LIGAMENT HEMATOMA; PROBABLE TUBAL PREGNANCY.

Mrs. O., Ipara; last child three years ago. Since the birth of this child she has suffered with more or less double ovarian pain and with menorrhagia. Two months before operation she had what she supposed to be a miscarriage. She was confined to bed for three weeks on account of bleeding and left-sided pain. She had been bleeding from the uterus continuously since then. Vaginal examination showed cystic mass filling uterus posteriorly and to the left.

Operation was performed one week ago. The ovarian artery was tied upon the left side, the anterior face of the broad ligament was stripped from the tumor, and the tumor and uterus removed entire without rupture. Convalescence has been remarkably easy.

II. PROBABLE RUPTURED EXTRAUTERINE PREGNANCY.

Pathological examination.—The specimens consist of the uterus, a large hematoma distending the left tube, the right tube, and both ovaries.

Macroscopic examination.—The uterus, amputated at the internal os, is considerably larger than normal, measuring 7.5 by 7.5 by 5 centimetres in its various diameters. It is otherwise normal. The left tube is dilated into a large sac measuring 12.5 by 7.5 by 5.3 centimetres in its various diameters. It contains on section a large mass of clotted blood, and, in relation with proximal end of the tube, a circular area of tissue much resembling placenta. There are no signs of chorion villi. The right tube measures 7.5 centimetres in length and 5 centimetres in the proximal third and 1 centimetre in the distal two-thirds in diameter. The abdominal ostium is closed. The outer two-thirds of the tube is irregularly distended and contains considerable blood. The left ovary is adherent to the hematoma wall, is very large, measuring 5.3 by 5 centimetres in diameter, and the greater part is dilated into a cyst containing blood. The right ovary measures 2.7 by 2.2 by 1 centimetre in diameter, and, except for a few adhesions covering its surface, is normal.

Microscopic examination.—Sections made from the tissue resembling placenta showed it to be composed of disintegrated blood clot. Sections made from the hematoma wall showed no chorion villi and that it was composed of muscle fibres. Section through the endometrium showed slight hypertrophy, the

¹ See original article, p. 218.

smallest amount of small round-cell infiltration, but no characteristic embryonal cells.

III. SUBMUCOUS FIBROID OF THE UTERUS.

This specimen was removed from a middle-aged woman who had suffered for many months with very profuse metrorrhagia. The operation was very easy, the stump being treated intraperitoneally, and convalescence has been uneventful.

Pathological examination.—The specimens consist of a uterus the size of an adult head, and the tubes and ovaries from both sides. The uterus, on section, is found to contain a large submucous fibroid tumor filling up the entire uterine cavity and showing signs of beginning fatty degeneration. The uterine wall is very edematous and hypertrophied, measuring 3 centimetres in diameter. The tumor measures 22.5 by 20 by 17.5 centimetres in its various diameters. The tubes and ovaries are macroscopically normal.

IV. BILATERAL ABSCESS OF THE UTERINE WALLS.

The patient from whom this specimen was removed gave the following history:

Mrs. F., 22 years of age; tailoress; Russian; multipara. Her present trouble followed the birth of her child eight weeks ago. The labor was difficult, requiring a forceps operation. She began to have pain, three days after the birth, in the lower abdomen, and since has had fever, particularly at night. On admission to the hospital she has complained of pain in the left iliac fossa. During the first three days she was in the hospital her temperature ranged between 102.3° and 100° F., the pulse between 130 and 100. During the seven days prior to operation the temperature remained at about 99° , pulse 86.

Vaginal examination.—Vagina negative; cervix lacerated; the left ovarian region was filled with a firm mass.

Operation.—Celiotomy. The intestines were found generally adherent to the fundus uteri and to the anterior and posterior faces of the left broad ligament. They were separated with difficulty, and it was necessary to suture a rent in a loop of small intestine. An abscess was discovered on the right side of the uterus in the uterine wall immediately below the cornua, containing about one drachm of pus. A smaller abscess was found on the left side of the uterus, communicating with an abscess cavity of the left broad ligament. The abscess cavity of the left broad ligament in turn communicated by an opening in the sheath of the left psoas muscle with the psoas muscle. The Fallopian tubes were apparently normal and were in no way involved in the abscess. After the uterus and appendages had been removed and the greater portion of the left broad ligament excised, it was seen that pus was escaping from an opening in

the sheath of the left psoas muscle. Pressure from above downward on the psoas muscle caused pus to escape from this opening in the sheath. About an ounce and a half of pus was pressed out in this way. The pelvis was thoroughly washed with a solution of 1:2000 bichloride, drainage tube introduced, and the abdomen closed. The patient had a very easy, uneventful convalescence. It is now two weeks since the day of operation; the incision is firmly closed and there is no discharge whatever of pus from the drainage-tube tract. Before operating upon this woman I had determined to adopt the following procedure: to open the abdomen in order to determine the origin of the purulent collection in the pelvis. In case the Fallopian tube had formed the focus of the suppuration I had intended to remove the tube and abscess cavity as completely as possible by the abdomen. In case, however, I found that the tubes were not involved and that the collection of pus had originated in the cellular tissue of the broad ligament and was confined to this structure, I had expected to close the abdomen and to incise and to drain by the vagina. Before operating I had not suspected the existence of uterine abscess. Having, however, found this condition, it seemed most advisable to adopt the form of operation which I have described.

Pathological examination.—The specimens consisted of the uterus and tubes and ovaries from both sides. The uterus measures 8.1 by 7.3 by 3 centimetres in its various diameters. The mucous membrane is of normal thickness, the muscular wall yellow in color, apparently fatty degenerated. On each lateral wall below each cornu and subperitoneal there is part of an abscess wall covered with a pseudo-membrane; that of the left side is much larger and the uterine tissue is partially destroyed. The peritoneal covering on the anterior and posterior surfaces of the uterus is normal. The left tube measures 8 centimetres in length and 1.3 and 1 centimetre in diameter. The abdominal ostium is patent, the tube wall soft in consistence, the muscular wall considerably thickened in its proximal two-thirds and almost normal in the distal third, and the peritoneal covering is normal; the mesosalpinx is of about normal length but somewhat thickened. The right tube measures 8 centimetres in length and 0.7 and 1 centimetre in diameter; the tube wall is not so much hypertrophied as that of the opposite side, the peritoneal covering is normal, and the abdominal ostium is patent; the mesosalpinx is very much shortened, thickened, torn, and covered with adhesions toward the uterus. The ovaries measure 3.2 by 2 by 1 centimetres in their various diameters. They contain a few small follicular cysts, but are otherwise normal. Diagnosis: chronic metritis; bilateral subperitoneal abscess of the uterine wall with pseudo-membrane formation; subacute bilateral salpingitis with hypertrophy of the tube wall and without closure of the abdominal ostium—evidently not the primary

seat of infection; and chronic follicular oöphoritis. From this examination it appears evident that the subperitoneal or intraligamentous infection must have taken place through the uterine wall.

DR. HIRST.—I am much interested in the statement by Dr. Penrose in reference to pus running up the psoas muscle. This, I think, is a very rare occurrence. I have seen but one such case in which it was possible to do what Dr. Penrose had in mind to do—namely, to open the abdomen first in the median line and to examine the pelvic organs thoroughly; then, if possible, to open the abscess extraperitoneally. This was not possible in Dr. Penrose's case, and it rarely is possible. In my case I found on opening the abdomen that the womb was perfectly normal, that the tubes and ovaries were perfectly healthy, that there were no peritoneal adhesions of any kind, but in the right broad ligament there was a large collection of pus separating the layers of the ligament, as if it contained a large intraligamentary cyst.

I made an incision over Poupart's ligament and introduced my finger up along the psoas muscle as far as it would reach, following sinuous tracts from which pus oozed as I opened them up, washed out thoroughly, and then examined the pelvic floor without result. The abscess was high in the pelvis, mainly in the false pelvis. The woman had had fever for four months after an abortion, and was under the charge of a homeopath. I was called in one night and operated the next morning. Within twenty-four hours she had a normal temperature, for the first time in four months. The temperature has continued normal for the last two weeks; the cavity is discharging less and less pus each day, and I think will soon close up.

This case is an illustration of the impossibility, in some instances, of evacuating a pelvic abscess through a vaginal incision. I could not have reached the whole collection of pus, although I might possibly have tapped the lower portion of the abscess through the vagina. Vaginal incision, therefore, would have been quite useless. The proper rule of practice in these cases is to do what Dr. Penrose did—investigate the condition of the abdominal cavity thoroughly through a median incision, and be guided as to what is to be done subsequently by what is found in the intra-abdominal investigation.

I made one little error in technique to which I wish to call your attention. I made an incision above Poupart's ligament before closing up the central abdominal incision. I felt pretty certain I was pursuing the right course, but I had not sufficiently the courage of my convictions to shut up the median abdominal wound and to seal it with collodion before incising the abscess. I simply packed the median wound with gauze and protected it with pads, then made an opening over Poupart's ligament with the idea of using the central abdominal wound to evacuate the

abscess cavity if I failed to reach it through the extraperitoneal incision. This was not necessary. I burrowed about with my fingers in the abscess cavity, and although I cleansed my hands, as I thought, thoroughly, I infected the median wound in sewing it up afterward. This is the first time since I have been using the method introduced in this city by Dr. Penrose that I have had trouble with an infection of the wound. Although this was not a serious accident, resulting merely in some suppuration and a little gaping of the skin wound, I call your attention to it, because it is one which can readily be avoided.

I should have shut up the first wound, sealed it up, and then proceeded to evacuate the pus cavity; or, in case it would be advisable to leave the first wound open, I should on another occasion have some one who had not put his fingers in the pus cavity sew up the median abdominal wound.

DR. SHOEMAKER.—These cases are interesting as showing that the psoas muscle can be infected from within the abdominal cavity. I have seen one case in which this occurred and in which removal of the pus focus and thorough drainage was sufficient to cure the case; but of course it is a method of procedure in the treatment of psoas abscess which would require great caution, and it is worth while to call attention to the fact that psoas abscess ordinarily has a focus of bone erosion along the spinal column, and that the drainage of such an abscess would be likely to be disastrous if conducted through the abdomen. Of course in a case of that kind it would be better to make posterior incision in the groin and drain from the groin to back of the trunk.

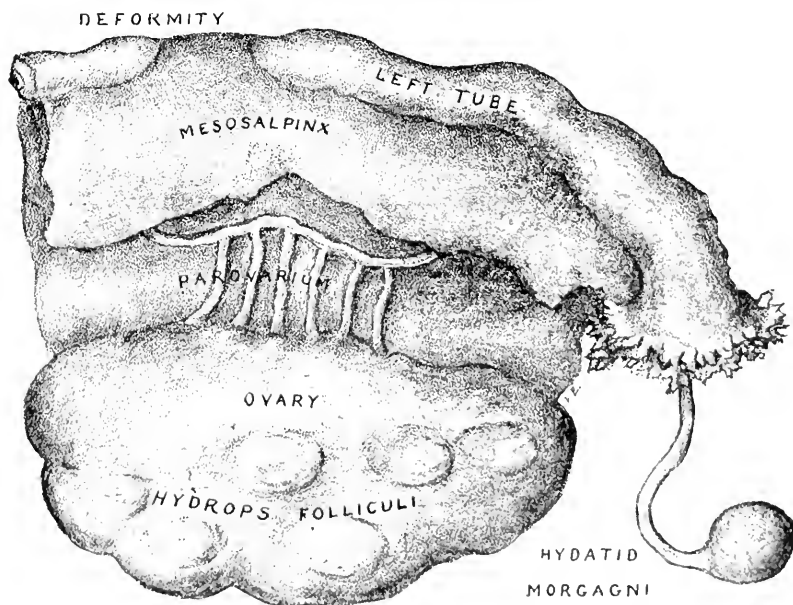
CONGENITAL DEFORMITY OF THE FALLOPIAN TUBE.

DR. PENROSE.—The specimen which I present, with an illustration made for me by Dr. Beyea, shows what I think to be a congenital deformity of the Fallopian tube. I found this condition in a woman upon whom I performed the operation of abdominal hysterectomy for malignant disease of the fundus uteri. It was discovered after the uterus had been removed. There were no inflammatory adhesions and no sign whatever of any periuterine trouble.

The specimen consisted of the uterus and Fallopian tubes and ovaries from both sides.

Macroscopical examination. Left side.—The tube measures 10 centimetres in length and 0.6 and 0.8 centimetre in its various diameters. The abdominal ostium is patent, the peritoneal covering appears perfectly normal, and no sign of salpingitis or perisalpingitis can be detected macroscopically. At a distance of 5 centimetres from the abdominal ostium and 3.8 centimetres from the uterus ostium the tube ends abruptly and the intervening space is composed of what seems to be apparently normal peritoneum. A straw introduced from the abdominal ostium

at uterus shows the tube canal patent but ending at the deformity. There is a hydatid of Morgagni attached to the fimbriated extremity. Between the peritoneal layers, at the deformity in relation with the distal end of the tube, there is the slightest effusion of blood. There are no signs of traumatism. The mesosalpinx is perfectly normal in length and thickness and shows a normal parovarium. *Right side.*—The tube measures 11 centimetres in length and 0.6 and 0.8 centimetre in its various diameters. The abdominal ostium is patent and it appears normal in every respect. The mesosalpinx is normal. The ovaries are the seat of a marked hydrops folliculi, the result of chronic congestion, as there are no signs of perioöphoritis. They are of about normal size, measuring 3.6 by 2.5 by 1.1 centimetres in



their various diameters. The uterus is 8.8 centimetres in length, 7.5 centimetres in width at the fundus, and 5 centimetres in thickness. It was removed complete because of the suspicion of carcinoma. The cervix was very hard but not nodular. The endometrium is markedly hypertrophied, measuring 0.6 centimetre in thickness; its surface is somewhat more nodular than normal. There is a slight effusion of blood over its surface. The muscular wall is yellow in color and appears to be fatty degenerated.

Diagnosis.—Congenital malformation of the left Fallopian tube; normal right tube; hydrops folliculi of both ovaries; and enlarged uterus, apparently normal except that the endometrium is very much hypertrophied. The fact that both tubes

were of approximately the same diameter and length, that there were no signs or the least suspicion of inflammatory change in uterus with either tube, seems sufficient evidence that the described condition of the left tube is a congenital malformation.

Dr. EDWARD P. DAVIS presented

A UTERUS AND A FIBROID POLYP

from a case whose history is as follows: The patient, aged 48 years, had suffered for several years with irregular hemorrhage. She had been under the treatment of a homeopathist, who informed her that her case was beyond medicine. She had also been treated by the administration, probably, of ergot. Although she had visited several clinics, there is no history that a positive diagnosis had been made or that an attempt at removal had been suggested. During the month of March last she was seized with sudden hemorrhage and pain during the night. She summoned a physician in the neighborhood, who found her exsanguinated, the polyp expelled from the uterus and protruding from the patient's vulva. After unsuccessful attempts to replace the polyp the attending physician sought counsel in the case. I instructed him to take the patient to the Polyclinic, where I saw her a few hours later. She was exceedingly blanched, conscious, but profoundly anemic and shocked. The stalk of the polyp was as large as a finger and very readily ligated and severed. The uterus was thoroughly douched, packed with iodoform gauze, and carried up into the pelvis. Under vigorous stimulation and transfusion the patient survived for several hours, perishing of heart failure in the early evening.

On examining the uterus the site of attachment of the stalk of the polyp will be observed at an area where the endometrium is in a condition of granular degeneration or necrosis. The hemorrhages had come from this site, as several sinuses in the uterus communicate directly with this area. The case is an interesting illustration of the fact that a patient having a curable disease may go for several years without accurate diagnosis or treatment and ultimately perish from the disorder.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Meeting of April 16th, 1895 (continued).

Dr. W. TRAVIS GIBB read a paper entitled

UTERINE DILATATION FOR STERILITY, WITH REPORT OF CASES.¹

Dr. R. A. MURRAY said that for a long time he had practised dilatation and curettage for the relief of sterility, and with

¹ See original article, p. 251.

success. Caution must be observed, where there was tenderness and enlargement of the tubes, to hold the uterus steady, lest the tubes should break and pus infect the peritoneum. He had found the curettage fully as well done with the blunt as with the sharp curette. In the majority of cases he had not packed the uterus at all, but allowed it to drain without any gauze. Indeed, he had seen the best results follow this course. Very frequently the menstrual period following the curettage was irregular in its oncome, and there might be some tenderness at the side of the uterus with no rise of temperature or sepsis.

Within the last three or four years Dr. Murray had had a good deal of success in treating cases of sterility of the kind under discussion without the curette, but by the introduction of the electrode into the uterus, first the positive, later the negative pole. This enabled him to pass the sound without cocaine and without causing pain. He could recall five patients whom he had confined within three years after having undergone treatment by the electro-sound for sterility, judging that there was real sterility because no child had been born for three or four years.

DR. CLEVELAND said the paper gave him opportunity to again refer to packing the uterus with gauze. Formerly he had been in the habit of using divulsion of the uterine in the way described by Dr. Gibb for the cure of sterility, and also for the cure of dysmenorrhea, but he had later discontinued it for a number of reasons. One reason was that there was in almost every case an elevation of temperature, 101° to $101.5^{\circ}+$, and excessive pain for twenty-four or forty-eight hours, which gave him some anxiety. In a number of cases he had allowed the gauze packing to remain in, following the teaching of men of experience at that time, and quieted the pain with an anodyne. But he afterward gave up this practice and resorted to the operation which bore the name of Dudley of Chicago. He had found this sufficient for the cure of these patients. As claimed for it by Dr. Dudley, it certainly did straighten the uterine canal, although there might be some question whether it really relieved the ante-flexion. The advantage over divulsion was that there was no danger of recurrence of stenosis. He had performed the Dudley operation probably seventy times at least, and the majority of the cases had done well. Relief of dysmenorrhea had been marked, and in quite a number of cases where sterility had existed conception had followed the operation.

DR. J. RIDDLE GOFFE thought the paper was extremely valuable, especially in that it again called attention to the fact that dysmenorrhea and sterility in this class of cases were due to lack of development—to what is called an infantile uterus. The more he had studied this class of cases the more strongly had he become convinced that the solution of the difficulty lay in a correct appreciation of its etiology, and that the treatment, in

order to be at all efficient, must extend over a considerable period of time and must be directed along the lines that stimulate the development of the uterus. He did not think one should tear the cervix open by violent dilatation. The treatment should rather be gradual, and it was his custom, when such patients presented themselves, to tell them that there was no use commencing treatment unless they were willing to have it continued at least three months. He then began with gradual dilatation, not with the sound, but with the steel expanders. He first used Wylie's, carrying the dilatation out in his office to the extent which the patient could stand without much discomfort. This was done once a week, the patient returning again the same week for the insertion of a cotton tampon. In some cases in which the disease had existed a long time and the endometrium was markedly involved he advised thorough curettage. In such cases he carried out the treatment which had been described by Dr. Polk, of dilatation, thorough curettage, and packing with gauze. He might add that he was still a believer in the gauze drain. Cases packed with gauze gave drainage sufficient not alone to moisten and saturate the gauze within the vagina, but also the external dressings, making it necessary to change them usually within twenty-four hours. In order to secure sufficient drainage the gauze, in its course through the cervical canal, should be of one continuous strip, and the *packing* should be done in the uterus, not in the cervix. He had seen cases in which the drainage had been entirely checked by tightly packing the cervix. The packing was not only in the body of the uterus, but also in the cervix, and was placed so tightly in the latter locality that nothing could get through. He believed that under these circumstances the gauze in the uterus became thoroughly saturated, the uterus underwent a certain amount of relaxation and dilatation, and when the gauze was removed several drachms of fluid escaped which had been dammed back in the uterus.

In addition to securing drainage, gauze was useful, he thought, as a stimulant, producing growth in and tending to straighten the uterus. In other words, the gymnastics which the uterus got in trying to empty itself of the gauze was a large factor in the treatment. He wanted his patients to have some pains, some uterine cramps. He wanted the uterus to be stimulated and to contract. He told his patients this in advance, for he believed that a large part of the beneficial effect derived from the treatment came from the gymnastic exercises, which tended to improve the circulation and to strengthen the muscular structure of the organ.

DR. H. L. COLLYER said the subject was of great interest to him because it had led him to make a number of experiments. Among the Hebrews, especially among Polish Jewesses, there was frequently more or less lack of development of the uterus. But there was also an element which must be taken into consid-

eration in the cause of sterility in some cases—namely, impotence on the part of the husband. He had found about ten per cent of the husbands of women who were sterile either totally impotent or partially so. Where the impotency was not complete on the part of the husband he might impregnate his wife after a period of rest secured by a visit of the one or the other abroad.

Dr. Collyer thought that dilatation, when done carelessly, was more likely to result in harm than in good. For instance, when performed in the doctor's office or at the clinic it was attended with a great deal of danger, especially in cases where there was a tendency to granular inflammation. Moreover, in clinics instruments were not always sterile and were likely to carry infection.

There were many cases in which the simple passage of a sound was sufficient to set up a salpingitis which it would take the patient months to recover from.

Regarding the introduction of iodoform gauze after dilatation or divulsion, he believed Dr. Polk was the first to read a paper on the subject, and had recommended leaving it in a week until it was expelled. These cases frequently had rise of temperature to about 101° F., which was due, in Dr. Collyer's opinion, to absorption. He therefore thought it was a great deal better to remove the gauze twenty-four or thirty-six hours after its insertion, for during that time one had obtained all that he desired from it as to drainage, and by removing it he avoided decomposition, absorption, and rise of temperature. He approved of divulsion for the cure of sterility and dysmenorrhea, but he believed a great many women were subjected to this operation when there was little or no necessity for it. Dilatation would relieve dysmenorrhea, but it would not always relieve sterility. Only a few days ago he had again seen a woman who had visited different clinics in this country and in Europe, and had been told that she could never bear children and would have to have the tubes and ovaries removed. There was a retrodisplacement and cervical contraction. He did not operate, yet the woman was now several weeks pregnant. Dr. Collyer believed that in many cases of sterility apparently cured by operation the cure was really due to the rest given the husband, enabling his generative organs to secrete spermatozoa with which to impregnate his wife after the period of enforced continence.

Dr. EGBERT H. GRANDIN said he would be inclined to look at this subject from a somewhat different standpoint from that of some of the gentlemen who had spoken. In the first place, he did not think sterility was often due to imperfect development of the uterus, as one of the previous speakers had seemed to consider it, for the reason that women who had come under his observation complaining of absolute sterility as a rule menstruated.

ated regularly. That was to say, they had well-developed tubes and ovaries, and in such cases it would be rather exceptional to find the uterus undeveloped. Neither did he think that flexion of the uterus had anything to do with sterility. It was something which lay behind flexion which caused the woman to be sterile. We knew how readily spermatozoa would get through the minutest orifice when women did not want spermatozoa to get there, and it was hardly likely that these little bodies would fail to get by a flexion unless the flexion was associated with a pathological factor at the internal os or above it. In other words, in his opinion sterility was dependent upon defective drainage and its sequel, endometritis, and nothing else, when the tubes and ovaries were in a healthy state. Therefore, again in his opinion, gradual dilatation was not apt to prove effective except in cases where there existed a very light grade of endometritis, or rather a pent-up secretion instead of an endometritis. As a rule thorough dilatation associated with thorough curetting, followed by renewal of a healthy endometrium, was a *sine qua non* to the securing of conception in these cases.

Dr. Grandin said he believed that many women did not conceive because they miscarried. Paradoxical as this might seem, it was in a sense true. Many women did conceive, but, the endometrium being in an unhealthy state, the ovum was shed at the next menstrual period. It did not have the proper place in which to develop.

The treatment, then, which he set for himself in these cases was, under anesthesia, thorough divulsion, thorough paralyzing of the muscles at the level of the internal os, thorough removal of the diseased endometrium—such steps as would allow a healthy endometrium to form. He did like the gauze packing, not because it was a good drain, for he was inclined to think that after the lapse of thirty-six hours it ceased to be a drain. He believed that during the first thirty-six hours it did drain, for the simple reason that he must believe the evidence of his senses: he saw it drain. But after that time it ceased to drain, and one was apt to get temperature which was due to absorption. He used the packing, then, not as a drain, but in order to maintain the paralysis of the muscle at the internal os, in order to keep the os open a certain length of time; he took it out at the end of thirty-six or forty-eight hours and put it in again, repeating it as often as necessary. The point was to keep the uterine canal widely open during the intermenstrual period. At the same time new membrane was forming, and if the ovum became impregnated it had a proper soil in which to develop.

Dr. Grandin said he would not use stems, whether hollow or grooved. They became blocked and ceased to drain; they acted as irritants and set up endometritis. They caused the very condition which we were aiming to cure.

DR. GEO. T. HARRISON had arrived too late to hear the reading

of the paper, but he had been much interested in the discussion, especially in Dr. Cleveland's success with the Dudley operation. He must confess that he had not looked for any great results from that procedure when Dr. Dudley first read his paper, for the simple reason that he regarded ante flexion as a normal condition. It was only when the angle of flexion had become fixed by an inflammation—whether by parametritis, metritis, or perimetritis did not matter—that the condition became pathological and caused symptoms. He agreed heartily with Dr. Grandin that it was the associated inflammation which produced dysmenorrhea.

But he would extend the cause not only to inflammation in the endometrium, but also in the surrounding tissue. But, as modern therapeutists had shown, the surrounding inflammation could be modified by treatment directed alone to the endometrium, and he had, therefore, practised the method described by Dr. Grandin. In dilating he did not use instruments with blades, since the force came only upon two points, but preferred uniform dilatation with steel bougies which touched the entire perimeter. He still adhered to the belief of the advantage of gauze packing, although he had previously obtained as good results by irrigation of the uterus every day with carbolic acid solution.

DR. A. H. GOELET disagreed with Dr. Grandin with regard to the use of the stem. He thought it particularly useful in retro flexion as well as in ante flexion, and served a double purpose—namely, as a drain and also as a spint to keep the uterine body straight—and if used properly as a drain, or as one would use gauze, while the patient remained in bed, and it was removed, cleansed, and replaced every day and the cavity irrigated, drainage would, in his opinion, be better than from gauze. The difficulty experienced by most men in the use of the stem had probably been due to introducing it and leaving it without any support. By introducing gauze packing into the vagina the stem was supported and drainage by capillary action was favored. He regarded gauze packing as very important in the treatment of endometritis, which, with salpingitis, was to be regarded as one of the most prolific causes of sterility. But gauze packing employed in the ordinary manner frequently did more harm than good. It ought to be changed every twenty-four hours, and the cavity ought to be irrigated before replacing it (the gauze). He believed the usual custom was to let the patient alone after ceasing the use of the gauze, or after about a week, with the idea that the uterine canal would remain sufficiently patulous for continued drainage. This was a mistake, for on examining the uterine cavity after a week one would find that it contained considerable mucous secretion, which was retained and gave rise to irritation. These patients frequently complain of soreness for weeks or months afterward. He thought the operation and subsequent gauze packing should be looked upon

as only a preliminary step in the treatment. The uterine canal should be kept patulous and the cavity clean afterward, following out the ordinary principles of surgery. Frequently patients had come to his office after the operation complaining of bearing-down pain and soreness, which were produced by retained secretions within the uterus. The soreness and pain would be relieved in every instance by washing out the uterine cavity.

THE PRESIDENT, DR. BACHE EMMET, said he had not employed the severer methods which had been described for the cure of sterility, and he had used the dilator simply to overcome the "pinhole" os. Sterility had disappeared in his experience under different modes of treatment, including simply keeping the uterine cavity clean until the patient had passed her menstrual period, and also the passage of a galvanic current of moderate intensity by means of the negative electrode within the cervical canal. In former years he had also depended upon the posterior section of Sims and had obtained good results, but the milder rational means generally sufficed.

DR. GIBB made some concluding remarks. With regard to Dr. Murray's statement about tenderness after operation, it had not been his own experience that there had been much tenderness. As to operating when salpingitis was present, he had never operated when he thought the tubes were filled with any kind of material. He had had excellent success with the gauze drain, and had not seen any rise of temperature except in one or two instances. To renew the gauze drain as often as some of the speakers had advocated would only serve to increase the chances of infection. He had done Dudley's operation several times, but it seemed to him only to add a laceration while it did not fulfil the conditions as well as divulsion. He had not found the use of instruments in his office produce any bad effects, for the reason that he had always taken great precautions with antiseptics. He did not do dilatation at all in dispensary work, for it was hardly possible to keep instruments sterile at such places.

. . A paper on

VAGINAL DRAINAGE IN ABDOMINAL SECTION,¹

presented by DR. GEORGE H. MALLETT, was read by title and referred to the Transactions.

Stated Meeting, May 7th, 1895.

The President, BACHE McE. EMMET, M.D., in the Chair.

DR. EGBERT H. GRANDIN presented specimens from a case of

GENERAL PURULENT PERITONITIS

which he had seen in consultation forty-eight hours after a col-

¹ See original article, p. 184.

league had curetted for dysmenorrhea. The source of the peritonitis would seem to have been the rupture of an ovarian abscess. At any rate, on abdominal section, after the cavity had been washed clear of pus, he had found a hole in the left ovary exuding pus, and the tubes intact, although the left, as could still be seen, contained pus. He was informed that the operation of curetting had been performed under absolute aseptic precautions and for the twenty-four hours following there had been no untoward symptoms. Thereafter, however, the pulse had increased in frequency and the patient complained of considerable abdominal pain. He had carefully explored the uterus and had found it clean, there was no evidence of trouble in the lesser pelvis, and on seeing the patient again and finding the pulse rate high, 130, and the temperature low, 101°, and absolute paresis of the intestinal tract with beginning tympanites, he had counselled immediate abdominal section. Dr. R. A. Murray had concurred in this opinion and an immediate section was resorted to. On opening the cavity the pus welled out from every portion; the intestines were coated with flakes of lymph. After washing out the cavity the appendages were tied off, and, as the woman's condition was exceedingly critical, hot salt water was poured in and the cavity was closed after gauze had been packed behind the uterus. The woman lived for fourteen hours and then succumbed to the effects of the general sepsis.

This was the most rapidly fatal case of sepsis following operative manipulations of a minor type which Dr. Grandin had ever seen. He questioned if the operation *per se* had anything to do with the result, but rather believed that this abscess ruptured spontaneously, since there were no untoward symptoms until twenty-four hours after the curetting. The case proved the exceeding virulence of the pus from an ovarian abscess, and it also proved what he had often contended, that cases of general purulent peritonitis died no matter what the remedial measure resorted to. It would have been an absolute impossibility for this woman to have recovered under the opium treatment or the saline treatment, and the abdominal-section treatment simply resulted in enabling him to clear the peritoneal cavity of pus as far as this was at all possible. Nevertheless he still contended, as he had repeatedly done in the past, for early abdominal section in cases of peritonitis of a septic type, for the reason, as he had often maintained in the past, that whilst the symptoms might be most aggravated, the condition on section might be found localized and the woman would have a great chance of recovery. This was the sixth case of general purulent peritonitis on which he had operated and they had all died, whilst of his numerous cases where he had opened and found local peritonitis all had recovered.

A point about this case and similar ones on which he desired

to dwell, and the point which he found it most difficult to impress on those whom he taught and met in consultation, was the grave condition present in the absence of specially urgent symptoms. But the rapidity of the pulse, the low temperature, the practically flat belly meant deep septic infection and called for operative interference more urgently than the high temperature and the relatively low pulse rate. He had noted the same fact in the most grave cases of appendicitis he had operated upon, and yet usually found it very difficult to convince the family physician of the gravity of the case owing to practical absence of temperature. In septic cases it is the pulse which teaches the lesson, and not the temperature. In these cases it would be well for the woman if the temperature were not taken, for then the fears of many would not be quieted by absence of fever and operation would be resorted to earlier—the most important thing of all in order to save these cases, if they could be saved at all.

DR. H. L. COLLYER said he did not doubt the diagnostic ability of the first operator in this case, but the case showed how careful even the specialist, much more the general practitioner, should be to arrive at an accurate diagnosis regarding complications affecting the tubes and ovaries. He thought careful palpation under anesthesia would have revealed the enlargement present in this case probably to the size of an egg, and thus the fatal end might possibly have been avoided. He believed that curettage and minor operations were often done where the operator had little idea of the exact condition of things, and the case related showed how careful a man should be in arriving at a diagnosis before carrying out even as simple a procedure as curettage.

DR. A. F. CURRIER thought that all must agree with Dr. Grandin that most of these unfortunate cases died in which sepsis was pronounced and peritonitis diffuse, and it had been a question with him for some time whether they should be considered operable. Dr. Grandin had said that to save a patient by operation it would be necessary to operate early. It was difficult to decide, however, when early enough is. The apparent lesions were certainly not extensive enough in the beginning to determine that so serious a condition existed, and it made little difference what was done by the time the case was seen, as a rule, by the specialist, for the result would almost certainly be fatal. He supposed that in the case reported sepsis and peritonitis were present before curettage had been performed by the physician, but they had not been detected.

DR. RALPH WALDO said he had positive views on this subject. He believed that if one operated in every case as soon as he felt the amount of tumefaction or enlargement which probably was present in this case, and removed the adnexa alone, or adnexa and uterus, either by opening the abdomen or through the vagina, there would be a much greater mortality than there had

been in the past when we had not been in the habit of operating upon the first indication. Every one who had seen much of obstetrics or of sepsis, whether in hospital or in private practice, must admit that in many instances where tumors were present it was impossible to say whether they contained fluid or not. Such tumors might be the size of a hen's egg; they might be very large; and if the infection were of a serious nature the patient died whether we operated or did not operate. He believed that if we removed septic material from within the uterus and vagina, and then waited, watching the case to meet any indication which might arise, we would be giving the patient the best chances which our art up to date could offer. To operate in all cases which had passed under such terms as perimetritis, cellulitis, etc., and which in the past were very common in maternities, he believed would greatly increase the mortality. If there were general sepsis and one operated, he would be no more likely to cure the patient than would the general surgeon who should cut off the arm of a patient infected by general sepsis starting in the hand.

DR. GRANDIN said that while Dr. Waldo's remarks were eminently proper, they did not fit the case which he had reported. He had spoken of early operation in cases of beginning septic peritonitis, where one had the initial symptoms, or rather certain negative evidence, of that condition; for, after all, the rapid pulse, low temperature, and flat belly constituted symptoms which were liable to deceive even the expert. Evidence of beginning septic peritonitis being present, the point was to operate early, and we would never be able to do that until the general practitioner learned to recognize the value of the symptoms mentioned. He had not said that if he had opened this woman's abdomen when he first saw her, which was twelve hours before he did operate, she would have gotten well, for he believed that even then there was some general infection; but he did believe that her chances would have been better. He wished to have it distinctly understood that in this case he did not find localized pus; the pus was everywhere—up under the spleen, under the liver, and throughout the abdomen. Early operation in the presence of the suggestive symptoms before named was what we must urge, he thought, if we wished to save these patients at all.

DR. E. A. TUCKER presented the following:

PLACENTA PREVIA MARGINALIS; TRANSVERSE POSITION; PODALIC VERSION AND EXTRACTION.

L. K., a German woman aged 29, was brought by ambulance to the Sloane Maternity this morning (May 7th, 1895) with a history of having had a small hemorrhage two weeks ago and another last night. This was her fifth pregnancy. The four

former births were easy and normal. Examination showed cervix soft, thick, admitting one finger easily to the membranes. Finger was tinged with blood, but there was no active hemorrhage. Posteriorly and to left the thick edge of placenta was distinctly felt. Diagnosis of placenta previa marginalis was made. Patient was at the end of eighth month of pregnancy. Child was in a transverse position, head to left, dorso-posterior, so that only the small parts presented with the placenta.

Cervix was dilated easily till fist could be inserted. Intention was to do a bimanual version, but the small parts receded, so it was necessary to carry whole hand into uterus, after rupture of membranes, in order to seize a foot. Version was done and the child extracted alive. As hemorrhage began just after birth of child, placenta was expressed.

Length of stages of labor was for first stage six minutes, for second stage five minutes, for third stage one minute; total, twelve minutes.

Placenta shows the torn edge which presented. This was torn partly in effort to rupture membranes and partly in reaching for the receding foot. Upon fetal surface is a hematoma, nine by six centimetres, just at insertion of cord. Placenta is unusually thick, viz., four centimetres at the thickest part, and is full of fibrinous and fibrous nodules.

Patient lost twenty-six ounces of blood altogether, but rallied soon, so that at end of an hour after delivery her pulse was only 104. Stimulants and saline enemata were freely given.

DR. GRANDIN thought there was no question but what, had Dr. Tucker resorted to the old-time methods of temporizing with placenta previa, he would have had a woman very much exhausted, if not a dead one, to say nothing of that other danger, the danger of infection from the use of tampons. It seemed to the speaker that the method which Dr. Tucker had adopted in this case was the method for the present and future, associated, if necessary, with deep incisions in cases in which there was great rigidity of the cervix. His own cases which had been treated by this method were already on record. While he could not remember the exact figures, he had succeeded, in from thirty to forty five minutes, in emptying the uterus in cases of placenta previa, and in every instance except one he had brought forth a living child, and in all had saved the mother. Prior to adopting this method cases of placenta previa which he had seen treated by older methods gave a maternal mortality rate of fifty per cent, while the fetal death rate was nearer eighty. This was why he had repeatedly advocated elective accouchement.

DR. SIMON MARX thought the hematoma at the base of the cord was due to traumatism which had probably occurred during version. He was of the opinion, after a considerable experience with elective accouchement, that combined version was not the

proper method, but a true internal version was far more preferable. The lower uterine zone was likely to be rigid and friable, and by rapid manipulation one was apt to tear the cervix. In his first case, one of central placenta previa, there was a frightful tear of the lower uterine zone, due not so much to the technique of the operation as to the necessity for rapid delivery, for by the time the os was fully dilated he found the placenta in the vagina, and it was in extracting the baby hastily to save its life that the tear occurred. Although the case was in a tenement, occurred at midnight, and he had but one assistant, chloroform was given, the tear was closed, and the patient made a good recovery. Dr. Marx also mentioned some of the indications for deep incisions, Dührssen's method, and concluded by saying that he believed Dr. Tucker once opposed manual dilatation, and he congratulated him on his more recent recognition of its value.

DR. TUCKER wished to make a correction. He had never opposed manual dilatation of the cervix. On the contrary, he had resorted to it for fully five years in all cases in which it had seemed to him appropriate. He was, however, opposed to it in cases to which it was not adapted. Where there was a rigid cervix he thought manual dilatation would give worse results than other methods. He wished to be placed distinctly on record as not having been opposed to dilatation of the cervix by the manual method in any case adapted to it. While in multiparæ, as suggested by Dr. Marx, the cervix was usually soft, there were exceptions to the rule. He had recently had such a case, it being the woman's eighth confinement, he believed. The placenta was absolutely central, there was eclampsia, the cervix was very hard so that manual dilatation was impossible, yet rapid dilatation was necessary. He thought all would agree with Dr. Grandin's remarks.

PERSISTENT HYPERTROPHIED HYMEN WITH PINHOLE PERFORATION;
PREGNANCY; EXCISION OF HYMEN.

DR. H. N. VINEBERG presented the specimen.

R. F., a native of Austria, *et.* 23 years, married four years, came to Mount Sinai Hospital Dispensary April 21st, 1895, and gave the following history: At 16 years she had not yet menstruated, but suddenly was seized with inability to pass urine and had great difficulty in defecation. She was seen by Dr. Kleinwächter, who performed a slight operation without narcosis, which gave her relief. The operation was followed by the discharge of dark, tarry blood which kept up for several days. Ever since then the flow of blood would recur every four weeks. But for two days before the flow would set in she would suffer from a difficulty in defecation and in micturition similar in character to that experienced before the first appearance of the menses in her sixteenth year. Sexual intercourse was fairly satisfactory to the husband, but painful to the patient. She

came to the dispensary because for nine weeks she had not menstruated and was feeling generally ill.

On examination a thick fold of membrane was found occupying the entrance into the vagina. It projected somewhat between the labia minora, and could be easily inverted into the pelvic canal for the distance of about two inches. A very careful inspection revealed a minute opening, just large enough to admit the finest surgical sound, in the centre of the membrane at its upper third. A digital examination per rectum disclosed an enlarged uterus about the size of the gravid organ at the tenth week. The diagnosis of persistent hypertrophied hymen was made and excision of it advised. Accordingly, on April 24th, under aseptic precautions, it was entirely excised, the edges of the vaginal wall united by a continuous catgut suture. The wound healed by primary intention and the pregnancy progressed uninterruptedly. At the time of operation the vagina was found very much dilated, its walls very much hypertrophied, being quite smooth and leathery in consistence. The urethra along the anterior vaginal wall could be felt as a thick and hard cord about the size of a lead pencil.

The excised membrane is oval in shape, measures 3.5 centimetres in length and 2.5 centimetres in width. It is 5 millimetres thick, and the opening just admits the shaft of a medium-sized safety pin.

The particular points of interest are :

1. The blood first accumulating in the vagina evidently did not coagulate there, but slowly escaped through the minute aperture.

2. The non-development of a hematometra with all its complications as a result of the barrier to the free outflow of the menstrual fluid.

3. The hypertrophy of the vaginal walls and urethra from the increased work in consequence of the obstruction.

4. The occurrence of conception through so narrow an opening, militating against the theory that sterility is often due to a stenosis of the cervical canal.

DR. H. MARION SIMS had a similar case under observation, but the patient had rejected an operation. She was an unmarried school teacher, who had come to him about six weeks ago for very severe pain in the back, which had been present in some degree for six years. On examination he found this pain to be due to fracture of the coccyx which she had sustained some years before. Removal of a part of the coccyx cured her of the pain. During the operation the labia happened to be opened, when it was noticed that the vagina seemed to be closed. More careful observation showed a hymen without any apparent opening, and it was only after considerable searching that an opening large enough to admit only the smallest probe was found. Yet the patient had menstruated regularly and had complained of no uterine trouble whatever, as she assured him two or three days later. As there was a very slight discharge with a bad odor, it

was evident that the menstrual fluid had not a free escape and some decomposition took place, but the patient positively declined to have the hymen, which was practically solid vaginal wall, dissected out, saying that it had given her no trouble in the past, and as to interfering with marriage, there would be time enough if that should ever be contemplated.

DR. GEORGE M EDEBOHLS said that several years ago he had an almost identical case in a married woman of 24 or 25 years brought to him for diagnosis. She had been married about a year and had menstruated regularly up to about two months previous to the consultation. His finger passed up three inches in the vagina, when it reached a cul-de-sac through which he could feel the end of the cervix. Examination per rectum revealed a uterus about two months pregnant. Under the supposition that there was a cicatricial stenosis of the middle of the vagina, an operation was proposed. The woman had menstruated regularly until the occurrence of conception, yet no opening could be found through the cul-de-sac. As soon as an incision was made into the middle of the interposing structure it became apparent that it was an enormously dilated, imperforate hymen, that the vagina above it was normal, without any accumulation of fluid. Even after excising the hymen completely he was unable to find in it the aperture through which menstruation and conception must have taken place. After excision of the hymen the mucous membranes above and below were brought together by sutures. The woman was delivered in due time, without trouble, of a fully developed, living child.

UTERINE CLAMP OR HOLDER.

THE PRESIDENT, DR. BACHE EMMET, presented a fenestrated uterine clamp or forceps for use in holding the fundus uteri during certain operations, more particularly during ventral fixation, thus avoiding traumatism, even in slight degree, as caused by hooks or the tenaculum.

DR. EDEBOHLS did not doubt that the instrument presented by the President would perform the work for which it was intended, but, for his own part, he found no objection during ventral fixation to picking up the uterus with the tenaculum forceps. He took great care to seize the uterus at that portion of its surface intended for symphysis with the abdominal wall. The slight irritation or freshening thus produced on its surface aided materially in bringing about firmer adhesion to the abdominal walls.

THE PRESIDENT said he appreciated the argument advanced by Dr. Edebohls, but it was necessary sometimes to take hold of the uterus at some other point than that which was to become adherent to the abdominal walls.

Official Transactions.

ARTHUR M. JACOBUS,
Recording Secretary.

(To be continued.)

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, December 7th, 1894.

The Vice-President, GEORGE BYRD HARRISON, M.D., in the Chair.

DR. H. L. E. JOHNSON presented a

FIBROID POLYPUS,

it being the second one removed from the same woman. Also an ovary which had been removed for cystic degeneration.

DRS. A. F. A. KING and J. FOSTER SCOTT read papers on

PUERPERAL TETANUS.¹

DR. SAMUEL S. ADAMS said he was a believer in any experimental therapeutics that had in it reasonable hope of improvement in the results of treatment of the infectious diseases over what was attained by present methods. He said that the results of serum treatment in tuberculosis and diphtheria had been disappointing. Laboratory experimentation had promised most brilliant results, but clinically expectations had not been realized. Hence he was not so sure as to results in tetanus. He had seen several cases of traumatic tetanus in the Children's Hospital. About half of them got well under treatment similar to that recommended by Dr. King. While he was not sure of the efficacy of the serum treatment, he thought the efforts were in the right direction.

DR. H. L. E. JOHNSON said he was much interested in the subject of bacteriology; nothing had been so beneficial to gynecology as bacteriological studies. The surgeon was enabled to do operations with perfect safety which formerly were considered impossible. He said that the late Dr. J. F. Hartigan had written a brochure upon trismus nascentium from observations made upon children in the courts and alleys of this city, in which he attributed the disease to pressure on the base of the brain—being the same view held by the late J. Marion Sims. Dr. Johnson thought the disease was due to a bacillus, and cited two cases in his own experience in which the navel was dressed with dry earth from the yard after he had properly dressed it. These children were seized with trismus and died. The germs were conveyed from the earth through the navel.

DR. GEORGE BYRD HARRISON said he believed that in the intelligent application of bacteriology we held the key to treatment of this disease. At the same time he recognized the truth

¹ See original articles, pp. 225 and 230.

of what Dr. Adams had said : that we should be slow to reach conclusions. Dr. Johnson had done well in calling attention to the wonderful help given to surgery by bacteriology.

Dr. Harrison mentioned personal experience and observation of tetanus in animals—*condemned stock* chiefly—after the late war. Even amongst these there were *some* recoveries. In human beings he had known at least two cases relieved by old methods, or, at least, *under* them, and had even had a mule restored to comparative usefulness after a distinct attack. In this case the tail was always held in a stiff and unnatural position.

DR. W. SINCLAIR BOWEN said he had resided three years in a hospital where many persons suffering from railroad accidents were treated. He had seen five cases of tetanus, and in these the wounds were much soiled by dirt and axle grease being ground up in the tissues. Four of the five cases died, only one recovering.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.¹

TWENTIETH ANNUAL MEETING, HELD IN BALTIMORE, MAY 26TH, 29TH,
AND 30TH, 1895.

MATTHEW D. MANN, M.D., *of Buffalo, President.*

Third Day, Thursday, May 30th—Morning Session.

DISCUSSION ON THE ULTIMATE RESULTS OF TRACHELORRHAPHY.

DR. CLEMENT CLEVELAND said that one cause of possible failure to relieve reflex nervous disturbances was to be found in the fact that the operation of trachelorrhaphy, as understood by many, meant simply the repair of the angles of the laceration. But such an operation was not sufficient, because there was usually marked cystic degeneration in the anterior lip. He had been compelled to operate upon cases of this kind that had not been completely operated upon by others at first, and he had found a marked improvement after the second operation.

DR. ENGELMANN said that in the older cases there was more or less endometritis, and so he rarely did a trachelorrhaphy without previously curetting the uterus. In doing trachelorrhaphy he usually amputated a portion of the anterior lip. Notwithstanding what the reader of the paper had said, he had seen many cases where touching the raw surfaces had produced vomiting, backache, and other reflex symptoms, and these had promptly disappeared after the operation; indeed, when the operation had been done without an anesthetic he had observed

¹ Continued from p. 152, July number.

an immediate disappearance of these reflex symptoms as soon as the sutures had been brought together.

DR. ANDREW F. CURRIER said that all must have observed two classes of cases—those in which there was no marked lesion of the cervix and those in which the cervix was decidedly abnormal. He had been surprised that many patients in whom the cervical lesion was very slight were greatly benefited by trachelorrhaphy, and this would seem to confirm what had been said by the reader of the paper as to the profound effect of such an operation upon the emotions. Where the lesion of the cervix was well marked the operation gave rise to very marked improvement in the local and general circulation, and of course this was associated with an improvement in the general health.

DR. A. PALMER DUDLEY, of New York, in his early experience had operated upon all cases of lacerated cervix, but he had operated less and less frequently because he had become impressed with the fact that the harm set up by the tear occurred within the first sixty days. The laceration of the cervix gave rise to chronic passive congestion, and hence exerted secondarily a deleterious effect upon the ovaries. At the present time he seldom operated upon the cervix, except in those cases in which the scar was tender.

DR. HOMANS said that he had been accustomed to operate upon slight cervical lacerations, because he felt that even in these cases the formation of cicatricial tissue, by causing reflex irritation, interfered with digestion and the process of nutrition in general. He was not aware of any other condition in gynecology upon which there was so much disagreement. This was probably due to the fact that many of the symptoms were not due to the laceration alone, but to endometritis and other associated injuries to the pelvic floor. In view of the frequent association of these conditions he felt that a simple and safe operation like trachelorrhaphy could be resorted to freely and with propriety.

DR. FORD, in closing the discussion, said that he did not believe any gynecologist at the present time would sew up a large laceration of the cervix without curettement and removal of cysts, yet it did not seem to him that amputation of a part of the cervix was required. He had desired to call special attention to the fact that neurasthenic women were not improved by this operation in a larger proportion of cases than where general treatment was adopted. The frequent resort to the operation was apparently due to the use of such vague and meaningless terms as "reflex pain."

A FEW CASES OF TRUE PELVIC CELLULITIS—A PLEA FOR MORE THOROUGH PELVIC SURGERY.

DR. ELY VAN DE WARKER, of Syracuse.—It is not many years since, under the stimulus of what was then called "progress," the term "pelvic cellulitis" was denied a place as a condition or disease. After holding absolute sway as the leading factor in

pathology of the female pelvis, it was deposed and actually driven out of respectable literature by the pelvic surgeon. By the fingers of the laparatomist it was demonstrated beyond all doubt that what had been frequently regarded as an inflammation of the cellular connective tissue was but an adhesion of near parts, due to an inflammatory exudate or a disease of the tubes and ovaries, while the cellular structure remained intact. This condition was found so frequently that the existence of collections of pus in the pelvic connective tissue was regarded as rarely if ever seen, and that such collections of pus were in the Fallopian tubes or in the peritoneal spaces, shut in by adhesive exudate, or designated by the collective and uncertain name of "pus sacs."

After the performance of untold thousands of pelvic sections for the cure of pelvic inflammatory conditions, a vast number of which must have been useless and harmful, the more observing surgeons became aware that many of their patients were not cured and were even made worse. After vaginal hysterectomy became well established and a comparatively simple operation, the mysterious obstacle in the way of success was supposed to be the uterus, and the more advanced surgeon proposed, in cases where tubal and ovarian disease demanded extirpation, to remove the uterus also as the really offending and now useless organ. The pelvic surgeon lapsed into theory as narrow as the one that he had displaced, and equally at fault as an explanation of the total phenomena of pelvic inflammation. There are evident indications that the crude operation of tubal and ovarian extirpation as a general operation in pelvic inflammation is becoming obsolete, and that the future line of surgical relief will come from the direction of the hysterectomist. The reaction revived the old idea of pelvic cellulitis. It was the old theory, but seen in a new light. It is now a well-defined and scientific term; we know what it is, as well as what it is not. Limited in this way, it is a positive advance in our knowledge of pelvic inflammation and broadens the etiological factors of pelvic disease.

Of the existence of pelvic cellulitis I take it for granted no fair-minded and careful observer has the least doubt. I have always been found in the ranks of the conservative pelvic surgeon, but I became convinced that we did not go far enough, and that the uterus ought to be removed, not because it was diseased, but because by the removal of this organ we opened up the cellular pelvic spaces and secured the necessary drainage to relieve the cellulitis. Hysterectomy, in my opinion, affords the only route to this area of intrapelvic inflammation, and I am convinced that it is a hysterectomy of a certain kind. Preferably it is through the vagina, but it is not the operation by ligation, but by the forceps or clamp. It makes a wide difference whether all the spaces are occluded and surfaces are brought into contact by sutures and inclusive ligatures, or are left open to free drain-

age by the removal of the forceps which secures this result by the retracting tissues. The French method is now developing along this line, and, if we are correctly informed, with brilliant results.

If I am asked, "Ought this method to be practised in all cases?" I emphatically answer "No." We may have pelvic peritonitis with its resulting evils, without associated pelvic cellulitis. We may have many forms of tubal disease imperatively demanding operation, unattended with inflammation of the pelvic cellular spaces, and we may have the latter without the former. What I am contending for is a scientific recognition of the various forms of inflammation, and I believe that we may reach a reasonable differential diagnosis—not in all cases, however, for I have a profound respect for the difficulties of pelvic diagnosis by palpation. I have a simple diagnostic sign, and when I find it I feel very sure of the presence of cellular inflammation. In this tissue, pelvic or elsewhere, inflammation may extend by continuity into any part made up of like histological elements. According to Savage, we may have inflammation in the broad ligament extending into the iliac fossa laterally and downward, through connective-tissue spaces into the vaginal septum, and through the pubo-sacral areolar process to the lateral surfaces of the vagina. In these locations the infiltrated cellular spaces can be brought up between the finger in the rectum and the thumb in the vagina, as thickened, indurated, and doughy masses. This condition may extend downward an inch or more. It may extend to the lateral surfaces of the vagina, disappearing to the touch above the limits of the passage, and showing on palpation as a slightly elastic mass firmly fixed to the pelvic wall—smooth and glistening, the vaginal rugæ obliterated. I have observed that these lateral extensions reach downward further than those situated in the recto-vaginal wall, reaching in some instances nearly to the vestibule. This condition is a true cellulitis and indicates and is concurrent with cellulitis higher up in the pelvic space, but is not associated with pelvic peritonitis, salpingitis, or oöphoritis.

While this vaginal cellulitis has been described, I have not seen it referred to as an index of the character of the primary pelvic inflammation. Unless existing in a very marked degree it cannot be positively detected by vaginal examination alone, but by combined vaginal and rectal palpation. We must remember, however, that there is no reason why pelvic peritonitis and cellulitis may not coexist. Having this possibility in view, the symptom I have just described could prove the intercurrent of cellular inflammation. When this is well established I believe that thorough surgical treatment requires hysterectomy, as well as the older operation of removal of tubes and ovaries.

DR. J. WHITRIDGE WILLIAMS, of Baltimore, said that no one who had seen many autopsies on women dying during the puerperium could fail to have observed cases of true pelvic cellulitis.

He made this statement because most of the observations were made by surgeons on the living woman, where there could not be the same opportunity for determining accurately the exact location of the inflammatory process. It was nevertheless true that the vast majority of cases of pelvic suppuration occurred in the peritoneum.

DR. A. PALMER DUDLEY called attention to the fact that not all cases of pelvic cellulitis were reported. In Gaillard's *Medical Journal* would be found the report of a case in which he had removed in 1883 a ten-pound uterine tumor, complicated by a pelvic abscess entirely distinct from it, and with a normal peritoneum between the two.

DR. ETHERIDGE said that by vaginal examination it would be found in cases of parametritis that there was a smooth, unbroken surface, whereas whenever the inflammation was within the peritoneal cavity there was always a sulcus between the wall of the pelvis and the peritoneal inflammation. In cases demanding vaginal hysterectomy it would be found that the accompanying cellulitis was better drained by the vaginal than by the abdominal route.

DR. W. GILL WYLIE said that he had been one of those who had first advocated the idea that what we formerly called chronic pelvic cellulitis was really a pelvic peritonitis. It was true that many had since stated that pelvic cellulitis *never* occurred. This was, of course, an extravagant claim, but it was none the less true that the cases in which pus was found within the pelvic cellular planes were very rare. Most of the cases so reported now were really, in the beginning, examples of acute lymphangitis, and nine times out of ten a disease of the tube and ovary had been the starting point.

DR. VAN DE WARKER, in closing the discussion, said that he did not deny the much greater frequency of pelvic peritonitis. In cases of pelvic cellulitis the cellular space between the posterior vaginal fornix and the rectum would become infiltrated, and this infiltration could be felt by the examiner. Similarly, the cellular space laterally between the vagina and the pelvic wall would be filled with exudate which could be detected on palpation. This constituted the important means of diagnosis to which he had alluded in his paper.

PREVENTION OF UTERINE DISEASE DUE TO CHILD-BEARING.

DR. W. GILL WYLIE, of New York.—The generative organs are the last developed, and the first to suffer if the individual exhausts her vitality by excessive social or mental excitement. Attention to the proper living of young girls is therefore an important means of preventing the development of pathological conditions in the pelvic organs. I do not think I use the forceps once now to twenty times where I formerly used it, and this is due to my practice of inducing labor from one to three weeks before full term in cases where there is any reason to expect

much difficulty during labor. The induction of labor can be safely carried out in careful hands, and the nurse and physician are both at hand when labor begins. After trying various plans, I have settled down to the old method of introducing a soft gum catheter and leaving it there over night. The glycerin injections I found produced very unpleasant sensations in the patient's head, and I have given them up.

The treatment of sepsis after labor by the now fashionable method of curettage and gauze packing seems to me superficial and inefficient. Where the secretions are thin, loosely inserted gauze will drain very well for a time, provided it is occasionally loosened up. Many of the follicles within the uterus, when irritated, secrete a thick, viscid material which is not drained off by the gauze. Again, it should be remembered that uterine contractions tend to cause the gauze to obstruct rather than to favor drainage. In most cases, if all clots and placental tissue be thoroughly removed at an early stage and a thorough antiseptic irrigation be given, the septic process will be arrested. If the uterus be not completely entered and the gauze be left in for twelve or twenty-four hours, the effete material is kept in the uterus and the tendency is to increase the sepsis and even force the septic material into the sinuses and veins. Where the sepsis has existed for several days the curettage and gauze packing are likely to fail, because the septic process has had time to penetrate more deeply. In cases where sepsis has not extended beyond the uterus—and this may not occur in many instances for three or four days—the method of intrauterine antiseptic irrigation which I adopted many years ago should be promptly resorted to. After washing out the vagina and canterizing recent lacerations with pure carbolic acid, I at once begin the washing-out of the uterus with a 1:40 solution of carbolic acid. One or two quarts of this solution are used, and then with my fingers I remove all clots and retained placental tissues. Where the uterus is not patulous I dilate it with a steel dilator. I never employ a sponge tent, not only because of the liability of its being septic, but because it tends to obstruct the canal. I next wash out the uterus with a little glycerin and water and then with the hot carbolic-acid solution.

The after-treatment is important, and consists in the systematic use of cotton tampons of boroglyceride introduced on the same principle as a pessary. This tamponade should be renewed twice a week. By this process you will almost always secure good and prompt involution of the uterus.

DR. A. PALMER DUDLEY said that he could not agree with the reader of the paper as to the propriety of inducing premature labor as he had recommended it. He made this statement because, while it might be safe in the hands of specialists, it was a dangerous doctrine to spread broadcast over the medical world.

He believed that the most important means of preventing

uterine disease after child-bearing was the prompt repair of all injuries occurring during labor. He had reported twenty-one cases treated in this way with good results. It was certainly well to remember that a retained placenta did not necessarily give rise to sepsis, although it might furnish a good starting point for a septic process. He performed trachelorrhaphy after labor with catgut, and hence there was no occasion to meddle with the case afterward. He believed that sepsis entered the uterine tissue through injuries in the major portion of cases. He made it a practice after each delivery to inspect the cervix with the aid of a Sims speculum, and if he found a laceration an inch or more in length he sutured the cervix.

Dr. WILSON, of Baltimore, said that he had never used a curette in his life in the treatment of cases immediately after labor, always preferring the use of the finger. It was his constant practice to explore the uterus in this way whenever delivery did not seem to be satisfactory. He had never resorted to packing the uterus, as he believed it was better practice to keep the canal perfectly open and use frequent irrigations of hot water. Medical treatment in such cases amounted to nothing; good nourishment, perfect cleanliness, and thorough washings several times daily constituted, in his opinion, the best treatment.

Dr. Lusk called attention to the fact that the streptococci invaded the mucous membrane of the uterus in septic cases, but that this resulted in the formation of a barrier of leucocytes. If, therefore, the physician would only refrain from enretting or meddling with Nature's work, almost every case should recover. In many cases the temperature would rise to 102° or 104° for two or three days in the evening, and the pulse would be elevated but not much above 120, and they would all get well if let alone. If enretted, tamponed, and douched every few hours, only a certain number would recover.

Dr. J. WHITRIDGE WILLIAMS, of Baltimore, said there were two classes of cases of sepsis—one in which there was a pure streptococcus infection, and the other in which there was a profuse and odorous discharge with high body temperature. In the former there was a perfectly smooth surface, and there was nothing to scrape away and no occasion for douching; and in the latter infection was usually due to putrefactive organisms, such as the colon bacillus. In this latter class, if the elevated temperature continue for some time, light enretting of the uterus was justifiable to remove the offending tissues, and this should be followed by a douche of sterilized water.

Dr. WYLIE, in closing the discussion, said that he had recommended the induction of premature labor because he thought his views on this subject would chiefly influence the younger members of the medical profession, and they had been sufficiently trained in antiseptic methods to adopt such treatment with safety. The method of washing out the septic uterus every hour he would recommend with the utmost confidence, because

in almost every acute case of sepsis he had met with success from this treatment. It was useless to wash out the uterus only once in two hours, and to do it once in three hours was worse than useless.

DECIDUOMA MALIGNUM.

DR. J. WHITRIDGE WILLIAMS, of Baltimore, cited a case of deciduoma malignum occurring in a negress, 35 years of age, who had been attended in her last pregnancy by Dr. Harris, of Baltimore. He delivered her on April 15th, 1894, of a dead child, after a normal but tedious labor. Considerable blood was lost immediately after the birth of the child. Dr. Harris discontinued his visits after the eighth day. About a week later a small nodule was discovered by the mother in the right labium majus. Three weeks later Dr. Harris saw the case again and found the right labium majus swollen considerably and containing a tumor about the size of a walnut. This rapidly became necrotic. She died of septicemia on July 12th in the Maryland General Hospital. The clinical diagnosis was, "sloughing hematoma of the vulva, and death from septicemia." At the autopsy there was found in the fundus of the uterus a small nodule and on the posterior wall a larger nodule. The lungs were crowded with small metastases of a bright-red color and having a red, spongy appearance. Similar metastases were found in the spleen, liver, and kidneys, and one in the right ovary. Microscopical examination reveals the hemorrhagic character of the wall of the growth. In some portions of the tumor are found nucleated cells resembling giant cells. In other portions of the tumor are found bands of tissue with large numbers of nuclei without any cells. The metastases all presented the hemorrhagic character and the same peculiar cells and masses of tissue. The tumor showed no traces of blood vessels—in other words, there was nothing to indicate that the cells were derived from the decidua. The structure of the tumor resembled very closely that of the chorionic villi. The individual cells apparently seen were due to the direction in which the section was made. Instead of being derived from the decidual cells, as has been supposed, this growth is derived from the outer layer of the chorionic villi, which is derived from the transformed cells of the uterine lining. The growth in my case is essentially carcinomatous in nature. In view of the wide differences of opinion regarding the nature of these growths, and in view of the fact that they present identical clinical histories, it is well to retain the original name of "deciduoma malignum." There are apparently twenty-seven undoubted cases of this disease on record, and, now that attention has been called to this subject, others are being rapidly added to the list. They occur either after full-term labor, an abortion, or a hydatidiform mole. Most of the cases have followed the latter condition and have occurred in comparatively young women. The cases are decidedly malignant, death usually occurring within six months. The diagnosis

can often be made by dilatation of the uterus, digital exploration, and the removal of a portion of the growth for microscopical examination. Where hemorrhage persists after a full-term labor, an abortion, or a hydatidiform mole, it should arouse our suspicions and lead us to inquire more carefully into the exact cause of the hemorrhage. The only treatment holding out any hope of relief is a prompt resort to vaginal hysterectomy.

REMARKS ON SYMPHYSEOTOMY.

DR. WILLIAM T. LUSK, of New York.—I wish to call attention to certain anatomical points recently brought out in France and which have an important bearing on the operation of symphyseotomy. The separation of the pubic bone, by permitting a projection forward of the child's head, gives a *practical* increase of one inch in the antero-posterior diameter. The incision starts from one inch above the symphysis and extends to the lower portion of the pubic arch. The clitoris is pulled downward, thus putting the suspensory ligament on the stretch. This ligament is then snipped through, which allows the clitoris and its attached vessels to be drawn out of the way. The finger is passed down toward the symphysis and the peritoneum is pushed backward. A guard is then introduced so as to push the neighboring parts and vessels out of the way, and so allow the safe and rapid division of the symphysis pubis. All this may be carried out with practically no hemorrhage. By alternate flexion and extension of the limb we can determine the position of the symphysis—whether or not it is situated in the median line. As the object of the operation is to save the life of the child, the separation of the bones to two and three-quarter inches should be secured at once, and then the assistants are charged with the important duty of preventing any further separation of the bones. To avoid an unequal separation on the two sides and the consequent danger of injury to the sacro-iliac synchondrosis, the woman's knee on the side which is moved most easily should be flexed and drawn inward, and held there firmly by an assistant while the other side is being abducted to the proper extent. As the vagina and bladder have no support after the division of the symphysis, great care must be taken that these parts are not injured during the efforts to extract the child. For this reason the cervical canal and the vagina must first be very thoroughly dilated.

Between the two bones there are very strong fibrous structures, and three sutures passed between the two divided ends of the bone are far superior to the various devices that had been offered to aid in securing union at the symphysis. These sutures are easily inserted if the feet are turned inward and the ankles fastened together. The only difficulty in the after treatment is that a special form of bed must be used so that, while lying in this position, the patient may be raised and the bed-pan placed underneath her.

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ORIGINAL COMMUNICATIONS.

EARLY ECTOPIC GESTATION : ITS NATURE, DIAGNOSIS, AND TREATMENT.¹

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THE profession has learned, from the very large number of cases of ectopic gestation published in recent years, that this is by no means a rare condition ; and its dangers are so many and great, and often present themselves so suddenly, that every practitioner should thoroughly inform himself on the subject, so that he may quickly understand the nature of these cases when called to them, and be thus prepared to promptly institute the most approved therapeutic measures, only a brief postponement of which may result in disaster to the patient. A study of this condition may therefore be profitable ; and, as it is most frequently met with in the early months, we shall give no attention to its later history, when cases are very apt to fall into the hands of experienced surgeons who understand their management.

Classification.—The older writers divided extrauterine preg-

¹ Read before the Medical Society of the State of West Virginia.

nancy into many varieties and sub-varieties, but with the rapid advance that has recently been made as a result of abdominal section in these cases, aided by careful investigation of fatal cases by expert pathologists, the classification has been much simplified, perhaps the most generally accepted being as follows:

I. Tubal, with sub-varieties: (*a*) tubo-ovarian, (*b*) tubo-uterine or interstitial, (*c*) tubo-abdominal. II. Ovarian. III. Abdominal.

Many authorities, including such excellent men as Velpeau, Kiwisch, Thomas, Bandl, and Tait, do not believe that the ovarian occurs as a primary condition. Bandl,¹ after very extensive investigation of pathological specimens, failed to find a single case of ovarian pregnancy and therefore doubts its existence. Wathen² holds that the ovum, failing to enter the tube, cannot unite itself by villous attachment to the surrounding maternal structures, because these are in constant motion, and hence the ovum speedily dies and becomes absorbed. In no case of so-called ovarian pregnancy, he claims, has ovarian stroma been microscopically demonstrated to be present in all parts of the sac, as would be the case in a gestation primarily ovarian. Tait suggests that the cases of so-called ovarian pregnancy are broad-ligament cases which by their growth have caused a spreading-out of the ovary on the wall of the gestation sac, as is sometimes found in cases of cysts of the parovarium. Others³ suggest a similar result from cases in which the ovum was originally located at or near the fimbriated end of the tube.

Different views are held by Martin⁴ of Berlin, Baldy,⁵ and many others. Here are several recent expressions of opinion: Pozzi⁶: "It is not impossible that impregnation should occur in a ruptured Graafian follicle in such a way as to cause the insertion of the placenta upon the ovarian tissue, but these cases are of rare occurrence." Arthur Johnstone⁷: "It has been demonstrated that it is possible for ovarian pregnancy to occur. . . . Pregnancy may occur anywhere where there is warmth and lymph, where the ovum and spermatozoon may get together." Jaggard: "It is useless to discuss a fact of Nature. Ovarian pregnancy has been established." Kelly: "A number of celebrated cases of unquestionable ovarian pregnancy, answering all the requirements of scientific inspection, have been reported."

As to primary abdominal pregnancy, although Pozzi⁸ claims that several well-authenticated cases are on record, and John-

stone⁷ says "there is a case recorded in which there was neither tube nor uterus, and the fetus was developed in the peritoneal cavity and the placenta was in the peritoneal cavity," yet its occurrence has been very generally doubted, Barnes, Bland Sutton, and Rokitsansky being among the sceptics. Baldy's late "System of Gynecology"⁸ says: "It seems neither rational nor possible, when we consider the absorptive powers of the peritoneum, that an ovum should drop into the peritoneal cavity, meet with a spermatozoon, and develop there." Berry Hart¹⁰ says: "We now know that there is no primary peritoneal pregnancy—that is, no case known where the placenta has had the free peritoneal surface as its maternal portion." Similar views were held by Thomas¹¹ twenty years ago. Was he not prior to Tait in expressing them? We quote: "After careful examination of every case of extrauterine fetation to which I have had access, I am unable to substantiate the position, and yet I feel inclined to believe that in the commencement of its development the impregnated ovum never attaches itself to, or draws its nourishment from, any other parts than those lined by the mucous membrane of the uterus or tubes. Knowing, as we do, the delicate and subtle connection which the chorion establishes with the maternal tissues, it is certainly difficult to believe that an impregnated ovum, falling free into the peritoneal cavity or detained within the Graafian vesicle, can, with parts so unlike the lining of the uterus, establish relations that are almost identical with those that are normal. . . . The view here advocated is far more rational and in accordance with physiological laws than the usually accepted theories."

For practical purposes we may safely conclude—the exceptions being so very rare, even granting their possibility—that extrauterine pregnancy is primarily tubal; that is, that the placenta is originally implanted within the tube, the situation of the placenta and not of the fetus determining the character of the gestation.

But, as conditions change as the ovum develops, we may on abdominal section find a gestation that is now either tubal, tubo-ovarian, ovarian, tubo-abdominal, abdominal, tubo-uterine, or tubo-ligamentous. We may here refer to the fact that a few cases have been reported, which are claimed to have been originally tubo-uterine, that terminated by entrance of the fetus into the uterus. The accuracy of such observations is still

doubted by many. (For recent cases see AMERICAN JOURNAL OF OBSTETRICS, vol. xxx., pp. 871 and 872, and vol. xxxi., p. 351.)

Etiology.—In general terms it may be said that the occurrence of extrauterine gestation is favored by any condition which interferes with the passage of the ovum into the uterus. The loss of tubal ciliary epithelium is believed to be a common cause. The late Dr. Formad and others have, in many cases examined after death or abdominal section, found the tubes devoid of ciliæ from desquamative inflammation. Spiral windings of the tubes with narrowing of their lumen (Freund), crypts or diverticula in the mucous membrane (Williams¹²), convolutions of the tubes causing whorls of tubal plicæ (Robinson¹³), the presence of intratubal polypi (Pozzi¹⁴), intrauterine tumors pressing upon the tubal opening, occlusion of the tube from constricting bands or adhesions from former serous inflammation, have all been named as favoring conditions. In this connection it may be mentioned that in the great majority of cases the patients are multiparæ who have been for several or many years barren, which fact is significant in that it points to some departure from the normal of the reproductive organs as a precedent condition.

Pathology.—When tubal gestation occurs the walls of the tube for a time thicken with the development of the ovum, but rather by vascular than muscular growth, and some thickening may at times occur from exudation. The uterus also undergoes hypertrophic changes and is always the site of a decidua of more or less perfect development. In a few weeks the tube becomes thinned and weakened by distention and the encroachments of the villi of the chorion, until in time the tube ruptures. This may happen within a month, but it is believed to be most common between the eighth and twelfth weeks and to almost always occur within fourteen weeks. Rupture may be the result of hemorrhage within the tube, the chorionic vessels separating in the process of tubal distention, or it may be precipitated by some physical violence, as by the patient stooping, lifting, falling, or by the sexual act. The rupture is most frequently into the peritoneal cavity, when hemorrhage from the torn vessels or placenta occurs, generally attended with violent pain, faintness and collapse, often terminating in speedy death. If the opening in the tube be small it may be plugged by the contents of the ovum, no serious symptoms arising at the time, but further rupture is almost certain to occur later.

In a limited number of cases rupture takes place into the broad ligament, when the symptoms are not apt to be grave, and the accident may even escape notice, since hemorrhage is limited by the natural pressure exerted by the folds of the ligament, and the early coagulation of the blood which is favored by the structure of the cellular tissue.

The ovum generally ruptures with the tube, the fetus speedily perishing. In exceptional cases, the ovum escaping destruction, the embryo may continue to develop until the period of viability or even full term is reached. In the latter case what has been called spurious labor sets in. By abdominal section a number of living children have been delivered. Harris¹⁵ reported thirty up to 1888. If an operation is not done at the time of spurious labor or before it, the fetus dies and may remain in the mother's abdomen for an indefinite time, either in a fresh state, or it may be reduced to a mass of adipocere, or undergo mummification, or become encrusted with calcareous matter, thus forming a lithopedion. Playfair tells of a case in the museum of the College of Physicians and Surgeons, London, where the fetus had been retained in a fresh condition in the mother's abdomen for over fifty years; Chiari reports the case of a lithopedion, the result of ectopic gestation, carried for fifty years; and Charpentier speaks of a case of Leinzell in which a lithopedion was found "in a woman of 94 years, who had carried it for forty-six years."

Some writers¹⁶ claim that the fetus may develop after escape from the ruptured tube into the peritoneal cavity, "owing to the formation of inflammatory false membranes around the entire ovum." Others accept Tait's view that only those cases that have ruptured into the broad ligament ever go on developing until the fetus reaches a period of viability. Hart has shown that as such cases continue to develop the peritoneum is pushed upward, the ovum developing beneath it.

Much more common than the above are those cases in which repeated ruptures occur, the peritoneal cavity finally being entered. Such a result is always to be feared, and these cases often terminate in sudden death from hemorrhage or a slower death from inflammation, suppuration, or septicemia.

When the rupture occurs early and does not prove fatal, the products of gestation, as well as the poured-out blood, may become absorbed and the patient be restored to health. She may

als) survive the suppurative process after months or years of suffering, the fetal bones finding an exit through the rectum, vagina, bladder, or abdominal walls. Hemorrhage into the tube, with fetal death but without tubal rupture, has been observed, and doubtless often occurs.

Prognosis.—This may be conveniently studied in this connection. Most writers are in the habit of painting a very dark picture, as did Goupil in these words: "I fear that we are authorized in saying that all the cases of intraperitoneal hemorrhage arising from extrauterine pregnancy end in death. . . . Death has been delayed six months. . . . Such cases are exceptional." Parry, whose classic work shed so much light upon this whole subject, wrote as follows: "It must be acknowledged that a happy termination of the rupture of the cyst is exceedingly rare. Of 149 cases in which the ovum was located in that part of the tube which does not traverse the tissues of the uterus, 145 died." Parry found a general mortality of 52.6 per cent among 188 unoperated cases. As reported by Bandl, 331 cases collected by Kiwisch, Hecker, and Hennig give a mortality, uninfluenced by treatment, of 75 per cent. Of 241 unoperated cases collected by Schauta,¹⁷ the mortality was 69 per cent.

Certain death or chronic ill health, most surgeons teach, must inevitably result in the vast majority of cases, the dangers to be encountered being from "hemorrhage, peritonitis, septicemia, suppuration, and compression."¹⁸

It is cheering to hear another story told by men of large experience. In 1891 H. T. Byford¹⁹ said: "The first considerable hemorrhage nearly always kills the fetus and but seldom kills the mother." From observations in practice he has been "led to believe that the danger of death from hemorrhage is very slight if the patient be kept quiet in bed for a long period. . . . When we have learned to diagnose all those cases that get well we will find that the death rate of all taken together is a small one." In discussing this subject both Byron Robinson and Newman took rather a hopeful view, the latter²⁰ saying: "Nature has thrown around the reproductive organs safeguards that I believe will protect women in a very large percentage of cases." In 1893 Byford²¹ spoke thus: "The condition has by no means the mortality attached to it that many eminent surgeons would have us believe." Werder²²

expresses the opinion that a large percentage of cases recover without operation, even after intraperitoneal rupture. Hirst²³ makes the statement that it is "demonstrated by Schauta's statistics that about one-third of all diagnosticated cases end in spontaneous recovery by the death of the embryo or fetus." These opinions of men who are well-known teachers and surgeons are entitled to careful consideration, and should lead to renewed effort to arrive at an approximately correct conclusion as to the mortality of ectopic gestation unmodified by treatment. Of nine unoperated cases occurring in the writer's locality, two only ended in recovery, one after the suppurative process, with years of ill health, the other after intraligamentous rupture. This naturally leads to a consideration of the diagnosis.

Diagnosis.—With our present knowledge on the subject it will not do to claim that extrauterine pregnancy can be diagnosed with uniform certainty. Even so eminent and experienced a surgeon as Tait has never diagnosed a case prior to rupture, and he says: "Under these circumstances I think I may be excused for maintaining a somewhat sceptical attitude concerning the correctness of the diagnosis of those who speak so confidently of making certain diagnosis in cases of tubal pregnancy before the period of rupture." Joseph Price,²⁴ whose phenomenal experience and success in these cases are well known, says: "Exceptionally, if ever, is the trouble recognized before rupture. . . . A few surgeons, with an experience of nearly one hundred sections for ruptured tubal pregnancy, have never found one unruptured." Wylie²⁵ says: "I wish to emphasize the great difficulty of diagnosis. Usually where a positive diagnosis is made it proves erroneous." McMurtry²⁶ says: "No man can diagnose a case previous to the time of rupture."

These quotations serve to indicate the prevailing opinion of abdominal surgeons. But many equally intelligent men whose practice has been less specialized take a less unfavorable view of the difficulties of diagnosis. Barnes claims that a diagnosis ought to be made with reasonable certainty even within two months of conception. Aveling says the diagnosis is easier than in normal pregnancy. Busey²⁷ says: "The diagnosis should be made in at least eighty-five per cent of cases, although this may be difficult in some and impossible in others." Hanks²⁸ says: "Ninety-five per cent can be diagnosticated before the end of the third month with great certainty." From these

very diverse opinions we may conclude that Kelly²⁹ is about correct in saying: "With a certain order of symptoms and signs we can with the utmost certainty diagnose extrauterine pregnancy in a certain proportion of cases. In another large proportion of cases it is a matter of much conjecture."

The convincing fact exists that quite a number of cases have been diagnosed prior to rupture, eight out of nine cases in a single year by Mundé,³⁰ and the diagnosis verified by abdominal section. Some abdominal surgeons call these "happy guesses," but such men have perhaps been less skilful in their "guessing." We may here emphasize the fact that prior to primary rupture cases of ectopic gestation are not apt to fall into the hands of the abdominal surgeon; and after the first rupture, even though the hemorrhage is small, unless the patient is seen within a short time the diagnosis is obscured by the altered conditions within the pelvis. If, by reason of pelvic pain, irregular flow from the uterus, persistent nausea, or other symptom, professional aid is sought, the family physician and not the surgical specialist is called. It is unfortunately too true that the great majority of cases are not seen by any physician until rupture of the tube occurs.

That the practitioner may be able to diagnose these cases with any degree of certainty, he must, firstly, have had experience in examining the female pelvic organs by the vaginal, rectal, and bimanual methods; secondly, inform himself thoroughly as to the natural history of extrauterine pregnancy; thirdly, familiarize himself with the conditions that may simulate this. A number of these are as follows: chronic tubal disease, with or without gravid uterus; pregnancy in one horn of a bifid uterus; pregnancy with thinned uterine walls; pregnancy in retroflexed uterus; irregular development of pregnant uterus; small ovarian or fibroid tumor; pelvic exudation; simple hematocele; miliary disease of the pelvic organs.

The employment of anesthesia should be resorted to, if necessary to remove a doubt. And if called to a case at all suggestive, the physician's mind should be filled with this subject until the possibility of extrauterine gestation can be excluded, since disaster is so apt to result if this condition be overlooked. Many cases have doubtless remained unrecognized simply because the mind of the attending physician has not dwelt on the possibility of this condition being present. We would insist, therefore,

that when summoned to a case whose symptoms at all suggest tubal pregnancy, it is our duty to get an accurate history of the patient's past and present condition, and proceed to our investigation with the question ever before our mind. Is this a case of extrauterine pregnancy?

We may save time by briefly summarizing the principal points requiring attention in

Diagnosis before rupture.—1. One or more menstrual periods have been missed. This is of increased importance if the patient is a multipara who has been barren for several or many years, no means to prevent conception having been used. It is well to remember, however, that menstruation sometimes remains normal, or so slightly altered—increased, diminished, or irregular—as to attract but little attention from the patient.

2. Added to the above, the presence of at least some of the usual evidences of pregnancy, as nausea, mammary changes, discoloration of vagina, softening of os uteri. The patient may herself feel that she is pregnant, and to this some writers attach considerable importance.

3. Increase in the size of the uterus, with displacement forward or to one side, the cavity empty, os soft, and cervix patulous. More than ordinary skill may be necessary to determine the size and emptiness of the uterus without the use of the sound, which, of course, cannot be employed until normal pregnancy has been excluded.

4. Pelvic uneasiness, often with pain of a colicky, sickening character, coming on in paroxysms, lasting for a short time, then disappearing to return after a period of quiet and apparent health. The pain sometimes shoots down to the thigh and may be accompanied with a sense of faintness. (If, as has been suggested, these pains are due to tubal distention with partial laceration, they are notes of warning which should not go unheeded.)

5. Irregular bleeding from uterus. This may occur in gushes, be accompanied with quite severe pain, and is often followed by tenderness on one or other side of uterus.

6. The expulsion of shreds of decidua. This sign is doubtless very generally overlooked; but in suspicious cases it should be inquired for, as it is of the highest value when its true character is determined by an expert microscopist.

7. The presence of a cyst-like tumor to one side of, or in

exceptional cases behind, the uterus (In a case reported by Meek³¹ the tumor was in front, which must be a rare location.) The tumor or mass is often quite movable, sensitive to the touch, and pulsation is felt in or quite close to it. If examined at intervals it is found to steadily increase in size.

All or a number of the signs and symptoms here enumerated may be present, but it may happen that none are observed by a physician prior to rupture of the tube. When this occurs the situation is materially changed. As it is generally at this time that the case is first seen, when often the patient's condition is so alarming that no time is allowed for studying books afresh, we venture, even at the risk of some repetition, to suggest in brief the principal points in the

Diagnosis after rupture.—1. The patient experiences sudden violent pelvic pain. This is at times agonizing, and may be accompanied by a sensation that "something has given way" within the abdomen.

2. The physician finds the patient pale, with skin cold and perspiring, the pulse rapid and feeble or even imperceptible, and temperature subnormal. She may have vomited, is very faint, or may be unconscious. In short, she is in a collapse of greater or less severity.

3. Inquiry or examination will elicit the fact that there has been more or less uterine hemorrhage. This is not always free, and the patient may not speak of it unless interrogated.

These three points should at once suggest the possibility or even probability of ruptured tubal pregnancy, and further inquiry along this line will probably result in bringing out this further information, viz.:

4. There has been discharge of decidua or parts of it.

5. The patient has been for a number of years barren, but has recently missed one or two periods, or has been bleeding at irregular times after a period has been delayed. Other symptoms of pregnancy should be sought for.

6. A careful physical examination reveals the presence of a boggy, somewhat tender mass to one or both sides of or behind the uterus, which is displaced thereby. If hemorrhage has been free an extensive hematocele is present surrounding the whole uterus and perceptible even above Poupart's ligament.

7. The uterus will be enlarged, cervix soft and patulous, with the usual discoloration of pregnancy present.

The signs and symptoms here named are those met with after rupture with rather free bleeding into the peritoneal cavity. It is well to remember that the symptoms may be much less severe than here presented. The tubal rupture may be small, the hemorrhage limited, and these may be into the broad ligament, in which event the symptoms are comparatively mild and the physical signs very similar to those of simple hematoma. In these cases the mass lies lower in the pelvis, is a more circumscribed tumor, often on one side only or extending also behind the uterus, which is crowded to one side or forward also. If shock is present it is not profound, and reaction soon sets in since hemorrhage soon ceases.

Treatment before rupture.—Puncture of the gestation sac for the purpose of withdrawing the fluid or introducing poisonous solutions has had its advocates, as also has electrical puncture. Success has in some cases followed the employment of these measures. Winckel³² spoke favorably of morphia injections as late as 1891, and reported five successful cases and two deaths. He prefers this method to celiotomy. J. Veit thinks the injections efficient but dangerous. Recent study of the literature of the subject has impressed the writer with the danger of all forms of treatment by puncture. It may set up peritonitis, septicemia, or hemorrhage from injury to large vessels. We mention this means of treatment only to condemn it, and advise against its use under all circumstances.

Aside from surgery, the only treatment that seems worthy of consideration is that by electricity. The purpose of this agent is to kill the ovum, after which the products of conception are expected to disappear by absorption. The opponents of the electrical treatment, especially such radical, perhaps we should say advanced, surgeons as Tait and Joseph Price, can find no language in which to denounce with sufficient severity this therapeutic measure. Were all men equally as expert in abdominal work as these, perhaps all would be equally intolerant of less radical measures than they employ. Let us consider briefly some objections offered to the electrical treatment and try to determine whether or not it is altogether bad.

1. *It will not kill the fetus with certainty.* This is disproved by experience, cited later. Baldy,³³ a vigorous opponent of this method of treatment, admits the power of the electric current, in this language: "We believe that in the majority of cases,

when seen early, electricity will kill the fetus." Grandin and Jarman,³¹ who favor celiotomy, say: "It seems proven that in its earlier stages the development of the ovum may be checked by galvanism or faradism."

2. *Electricity may precipitate the rupture of the tube or cause other serious results.* I have found no recorded case where the tube or ovum has been ruptured by this means. Janvrin's famous case proved fatal after the third application of galvanism and is quoted against electricity. An artery was found bleeding, but the tube was intact, and evidence was present that hemorrhage had commenced before the employment of galvanism. Janvrin himself, who favors celiotomy, admits that the case was not a proper one for electrical treatment. In a few cases shock or syncope has resulted, but this was temporary, and not fatal in any case, and all such cases of which we find any record had advanced beyond three months.

3. *After the death of the embryo a mass is left that may inflame, suppurate, form adhesions, and greatly complicate a future operation that will probably in the end be needed.* Such results may probably be anticipated in rare cases if gestation be well advanced, but are not at all apt to occur after the use of electricity within three months. Even Strahan,³² an ardent follower and admirer of Tait, denies that this argument has "much weight against killing the fetus before rupture, or even shortly after, for we know that as a rule fetus and blood are alike absorbed." Grandin and Jarman³¹ also say: "At this period galvanism may be resorted to with safety." We may add that suppuration after the use of electricity within three months has never been reported.

4. *Even the death of the fetus does not always prevent hemorrhage.* We have seen reports of but two cases where tubal rupture and hemorrhage occurred after embryonic death, and hence infer that the event is so rare as not to constitute a valid objection to the electrical treatment. Strahan, who suggests this point, finally abandons it as "not proven."

5. *It is the placenta and not the fetus that is the dangerous element*" (Tait), and the placenta may continue to grow after the death of the fetus. Tait has taught this for years. Thornton, Champneys, Johnstone, and others agreeing with him. A case is figured and described by Hart and Barbour³³ which those authors believed to demonstrate the truth of Tait's teaching.

But ten years later Hart's³⁷ further studies led him to conclude that his earlier observations were erroneous; that the so called placental growth is only apparent, the increase in bulk sometimes observed being due, not to growth of placental tissue, but to organization of blood clot from repeated hemorrhage into the substance of the placenta; and that this can only happen during active fetal life, the death of the fetus not antedating, but being caused by, these changes in the structure of the placenta when they become extensive. Tait still adheres to his position, but as that of Hart better commends itself to our judgment and seems more consistent with the teachings of physiology and pathology, we prefer to accept it, at least until new light is shed upon the subject.

The principal objections to the use of electricity having been noticed, let us now see what arguments in favor of the treatment can be presented. This may involve some repetition.

1. Electricity will kill the embryo, and so influence the placental circulation that the ovum ceases to grow. This was rendered probable by the experiments of the late Dr. Landis³⁸ on beetles, minnows, and newly-born rabbits. It is demonstrated by statistics collected by Brothers, referred to later, and by the testimony of many eminent men—*e.g.*, Thomas, who up to 1890 had thus successfully treated fourteen cases; Rockwell, who had at least as many; Hanks, McLean, and others of equally high standing.

2. The fetus dead, the products of conception become absorbed, the electrical current, especially the galvanic, hastening the absorption. The wonderful absorptive powers of the peritoneal cavity are now well known through the revelations of abdominal surgery; and Leopold's classic experiments reported in 1881 demonstrated that the peritoneum of a full-grown rabbit readily disposed of embryonic rabbits experimentally introduced, completely digesting the younger and encapsulating the more mature, which were thus rendered innocuous. That the fetus and placenta within the tube and broad ligament also disappear or become harmless seems to be abundantly proven by the experience of intelligent observers and by the restoration to health of those treated by electricity. Tait's faith in the absorptive powers of these tissues is forcibly shown by his method of managing the placenta in intraligamentous cases, *viz.*, by cutting the cord short and shutting the placenta in the sac. Hart³⁹

says that, unless located too near the bowel, from which infection may arise, the placenta in the extraperitoneal cases "does decompose, but becomes absorbed."

- 3. Electricity can be employed anywhere by any intelligent physician, while it is impossible for every patient to procure the services of a skilled abdominal surgeon.

- 4. Many women will submit to the use of electricity who cannot, because the symptoms do not seem to them to be grave, and for other reasons, be induced to consent to abdominal section—an operation attended with great expense and, except in the hands of the very skilful, great danger.

- 5. Since the diagnosis prior to rupture can seldom be absolutely certain, since the symptoms are often not very grave, and since electricity is very beneficial in some of the conditions which may be mistaken for ectopic gestation, it is justifiable to give the electrical treatment a fair trial. If its careful employment prove useless, the patient is still in a condition to be operated upon and will more readily consent to an operation. If electricity prove efficient the patient will be spared a needless operation that is never free from danger to life and future health.

A few words as to the statistics of Brothers, which, with four cases added by myself from later papers, make a total of ninety cases treated by electricity prior to the rupture of the tube. Two of these proved to be normal pregnancy, eight were treated by electrical puncture. Of the remaining eighty treated without puncture, thirty-three were treated by faradism, twenty-eight by galvanism, seventeen by both currents, one by the static, and in one the method is not indicated. Of these there was one death after the third application. This was Janvrin's case, already alluded to, in which hemorrhage had commenced before treatment. In four cases some shock followed the treatment, but all recovered. In all of these gestation was advanced from the fourth to the eighth month, and hence they were unsuitable cases for this method of treatment. In two electricity was abandoned, celiotomy being done with success in one case and with fatal result in the other. "In none of these cases," says Brothers, "can the electrical treatment be accused of having done any harm."

In this connection it is interesting to note that of forty-two successful cases collected by this writer in 1888, twenty-five

which could be traced were found in 1890 "to be doing well after a lapse of one to eight years, and none of them had to undergo a secondary operation. Many of these cases carried traces of the old trouble, but without perceptible inconvenience."⁴⁰ Buckmaster⁴¹ says: "There is no case on record where the proper use of electricity has been followed by bad results."

Martin,⁴² of Chicago, experimented on eggs, employing both the galvanic and faradic currents on different sets at the end of the first, and with stronger currents on other sets at the end of the second, week of incubation. The results proved the galvanic current to be the most effective, not one chick hatching of the set of eggs to which this current was applied in a strength of fifty milampères at the end of the second week. Martin has "no doubt whatever that a fetus of three or four months' growth would be deprived of life as effectually as the chicks were at the end of two weeks of incubation." Another reason for the use of galvanism rather than faradism is, that it better aids in promoting the absorption of the products of gestation.

We would here emphasize the opinion that electricity should not generally be employed beyond the third month of pregnancy. When the diagnosis is not clear its use is even more urgent, since abdominal section is not then the proper treatment. After intraperitoneal rupture electricity should never be used. In case of fetal growth after intraligamentous rupture its employment until the fourth month is past may be proper, since every added day of placental development increases the mother's peril.

In dismissing this part of the subject we desire to say that we by no means regard the electrical as the ideal treatment. We only claim that a very good showing can be made for it; that under circumstances already named it is not only justifiable but eminently proper; and that in the absence of the skilled abdominal surgeon—not him who has become skilled by six weeks' observation of the work of other men in a post-graduate school, but rather by that most valuable evolutionary process of actual experience—its employment is an urgent duty.

Hence it seems to the writer that the consideration of this, which is known in all lands as "the *American* plan of treatment," is entitled to rather more space than twenty-six lines in a work for general practitioners with the title "*American Text Book of Gynecology*."

Notwithstanding the good showing made for this treatment, abdominal surgeons generally prefer celiotomy even in unruptured cases, and this measure is rapidly growing in favor. The objections to electricity have been noticed. The surgeons claim that, when done by an expert operator, abdominal section for unruptured tubal pregnancy is a very safe operation. Wylie⁴³ thinks it should not give a death rate of more than one in two or three hundred cases. Baldy's book⁴⁴ says this operation "is one of the simplest in abdominal surgery, and in the hands of a skilled operator should have a mortality nearly *nil*." Pozzi⁴⁵ calls the operation in the early months "one of slight gravity."

While we have no disposition to combat these opinions, we believe the teaching decidedly dangerous unless the necessity for skill in the operator be insisted upon. The words of Byron Robinson⁴⁶ are here very apropos: "In no important branch of surgery or medicine, except in abdominal surgery, do men expect success without hard experience. Yet in abdominal surgery many totally inexperienced rush blindly, with sanguine hopes that their operation in the peritoneal cavity will, by fate, be a success. . . . It is a selfish humanity that stakes a patient's life and risks the success of an abdominal section in a fresh operator's hands, just because he must have a first case."

With this word of caution, which personal observation teaches the urgent need of, we regard celiotomy in early unruptured tubal gestation as the ideal treatment. In the hands of the skillful surgeon the strong points in its favor besides its safety are, that it removes at once a condition of constant danger, and nothing is left in the pelvis that is at all liable to cause future trouble.

Treatment after rupture.—The stirring words of Stephen Rogers, spoken long before the miracles of abdominal surgery were wrought, pointed out the course that is almost universally adopted to-day: "The peritoneal cavity must be opened; the bleeding vessels must be ligated. He indeed must be a madman who, under such circumstances, would neglect anything in his power to secure the chances such an operation would afford of saving the life of his patient." An editorial in the *Journal of the American Medical Association*⁴⁷ speaks thus emphatically: "The moment rupture occurs the abdomen should be opened and the hemorrhage be stopped by removal of its cause. In no event should the case be allowed to go on in the hope

that the patient, by some providential agency, may survive." Reed⁴⁸ advocates immediate operation, holding it unjustifiable to attempt a diagnosis between intra- and extraperitoneal hemorrhage. "Any examination," he says, "which will enable a surgeon to arrive at the truth is liable to disturb the tissues to an extent calculated to aggravate the existing mischief." Strahan⁴⁹ says: "To delay the operation is to remove the last chance of recovery."

To follow the teachings of these high authorities necessitates abdominal section in profound collapse and in disregard of the locality and extent of the hemorrhage. From very extensive study of published cases we find that in many instances the patient reacts from the shock, which is not due alone nor chiefly to loss of blood, but largely to the sudden impression upon the intra-abdominal ganglionic centres. To slightly modify Lusk's words: "The resources of surgery are rarely successful when practised on the pulseless." R. A. Murray⁵⁰ holds that by operating in shock "in a good many cases we will lose our patients instead of saving them," and he advises that efforts be made to bring about reaction before doing celiotomy. This may be aided by external heat, hypodermatic injections of various stimulants, and rectal, venous, or arterial injections of hot saline solution. In extreme cases the course advised by Douglas, of Nashville, seems wise, viz.: "Open the abdomen and grasp the proximal side of the tube, which stops the hemorrhage. Then transfuse the patient with a saline solution, bring up the blood pressure, and complete the operation by removal of the tube."

In the less dangerous extraperitoneal cases no such urgent measures are indicated, and most recent writers, even those who are abdominal surgeons, counsel some delay. Absolute rest, an ice bag to abdomen, anodynes and stimulants as needed, and complete preparations for an operation, are the measures indicated. Recurring hemorrhage may render abdominal section necessary; or, if the blood tumor be quite low, it may be preferable to operate through the vagina. If there is good reason to believe that the fetus is alive after its escape into the broad ligament, efforts should be made for its destruction, if the fourth month has not been passed.⁵¹ We know of no safer or more efficient measure for fetal destruction under these circumstances than electricity. Exceptionally the fetus may be destroyed or removed by operation through the vagina.

It is well for the less experienced to remember that scarcely any case is so desperate as to justify us in allowing the patient to die without some effort to relieve her. Says Robinson: "In ruptured ectopic pregnancy there is surgical hope though the temperature is nearly 107° and the pulse 160." Robinson did a successful celiotomy in a case with a temperature of 106.2° , and Reed did one when the temperature "vacillated between subnormal and 104° ."

Harris regards the operation as "rarely dangerous, and women recover when almost *in extremis* from hemorrhage" (private letter). This was true of a case of Palmer's,⁵⁵ of which the operator says: "After the operation was completed patient was absolutely pulseless. I could not see her breathing, and she looked like a woman who had been dead for several hours."

In the cases of intraperitoneal rupture with free hemorrhage it may become the duty of the physician first called, or other in the neighborhood, even though possessed of but little surgical experience, to perform abdominal section. The operation is not often a difficult one, and no one should shrink from it under these circumstances. Ross,⁵⁶ of Toronto, says: "There is no simpler operation in abdominal surgery. . . . A novice in the operation is much alarmed owing to the large amount of blood in the abdomen. If he will remember one cardinal point, that he is going into the abdomen to tie a bleeding vessel and that it is to be controlled by pressure on the tube near the cornu of the uterus, his hesitancy will at once cease."

While, therefore, we very much deprecate the rash and hasty resort to surgery by the inexperienced in cases demanding no urgency, we believe every general practitioner in sparsely settled communities should know how to promptly interfere in these cases, and have the courage to operate when a human life depends upon prompt action. To await the coming of an expert operator might, under exceptional circumstances, involve such delay as would mean death, while early celiotomy, carefully done, generally means recovery, prompt, perfect, and permanent.

Summary.—1. Extranterine pregnancy is probably always primarily tubal, the ovarian being a possible rare exception.

2. The danger from tubal pregnancy under expectant treatment has probably been exaggerated. More light on this point is needed.

3. Diagnosis before rupture, while often difficult, can in many cases be made by the expert physician with sufficient certainty to justify a resort to the electrical treatment or celiotomy.

4. Diagnosis after rupture can in a large majority of cases be made with sufficient certainty to demand at least an exploratory incision.

5. If a reasonably certain diagnosis is made before rupture, electricity—preferably galvanism—should be carefully tried, unless the patient can and will secure the services of an experienced and skilful abdominal surgeon. While employing this treatment arrangements should, if possible, be made to quickly secure the presence of a surgeon in the event of a tubal rupture.

6. The skilled abdominal surgeon is justified in opening the abdomen in all unruptured cases coming into his hands, as soon as the diagnosis is reasonably certain.

7. After intraperitoneal rupture, if evidences of free hemorrhage are present, at once open the abdomen and grasp the tube near the uterus. Complete the operation at once or delay it to employ restorative measures, as the patient's condition demands. Circumstances may render it proper to wait a reasonable time for reaction from shock before resorting to any surgery, but preparations for abdominal section should be promptly made.

8. After rupture into the broad ligament abdominal section is not urgent and is often unnecessary. No unskilled operator should resort to it unless the symptoms are exceptionally grave and skilful aid beyond reach.

9. After intraperitoneal rupture even the inexperienced physician, if none more skilful is within reach, is justified in performing abdominal section, if a human life depends upon prompt action; but this should never be done without counsel.

81 TWELFTH STREET.

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THE APOSTOLI TREATMENT OF UTERINE FIBROIDS.

A REPORT OF NINE CASES.¹

BY

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WITH all due deference to Ephraim Cutter for his initial efforts in the treatment of uterine fibroids by electricity, to Georges Apostoli belongs the credit of placing this treatment upon a scientific basis. He has given us a technique that is efficient and practically harmless, he has shown the profession the necessity of a proper knowledge of the physics of electricity before applying it to the cure of disease, and he has given us the results of a clinical experience unequalled by any one. His paper before the Tenth International Medical Congress² on the electrolysis of myomata is a model of scientific excellence; in fact, all his writings which have come to my notice have shown that conservatism, that careful attention to details, and that thorough acquaintance with the physics of his subject which mark the true scientific spirit. In his hands Ohm's law becomes a working formula of easy application. He has shown us how to reduce the important factor of the body's resistance and thus to increase the amount and intensity of the currents employed. The more we can reduce this resistance the greater the current we can use, and it was only when large currents could be applied to uterine fibroids *without danger* that electricity could be recognized as a curative agent in this disease. If we had had to rely on the technique of Cutter, electrolysis would have long ago been abandoned in the face of the marvellous results obtained by hysterectomy in skilled hands. Cutter's paper on the electrolysis of myoma, which followed Apostoli's at the Tenth International Congress, though an honest statement of his work and its results, shows a strange ignoring of Apostoli's improved technique, not to say ignorance of the workings of Ohm's law.

¹ A paper read before the Medical Association of Georgia April 17th, 1895.

² Verhandlungen des X. Internationalen Medicinischen Congresses, Berlin, 4-9. August, 1890, Band iii., p. 181.

Apostoli was to find his first and his greatest champion in Thomas Keith, who, in spite of his brilliant record in hysterectomy, discarded the knife for the less dangerous treatment of his confrère across the Channel. This surely was tribute enough, and Keith's renunciation of his own brilliant operative work and adoption of Apostoli's safer treatment did much to give Apostoli recognition. Keith, in speaking of hysterectomy, writes:

"I often ask myself the question: Does a mortality of eight per cent justify an operation for a disease that, as a rule, has only a limited active life, that torments simply, and that only for a time, though of itself it rarely kills? The mortality of an ordinary uterine fibroid, if left alone, is nothing approaching a death rate of eight per cent. I doubt even if the mortality of the extreme cases exceeds this. And, after all, the great difficulty is, not in doing even the worst of these operations, but in knowing what are the cases in which it is right to advise those who trust themselves to us to run the risk of a dangerous operation with all its attendant miseries. Could we get the mortality down to five per cent in the bad cases—and these only are the fit subjects—then one might advise interference with a more easy mind. I do not think that we can so advise if the mortality cannot be kept under ten per cent."¹

Apostoli, as he has again and again asserted, does not pretend to cure all cases of uterine fibroma by his method; he only asserts most positively that a very large majority of the cases are symptomatically cured and the number left to hysterectomy very small.

A review of Apostoli's recent publication,² a collection of papers giving the results of his treatment all over the world, bears testimony in a most convincing way to the good results obtained. But he has taught us not only how to treat uterine fibroids, but other uterine troubles which are amenable to electricity, and I regard his method in the treatment of metritis, endometritis, and subinvolution as even more important from the greater frequency of these troubles. I have seen a subinvolved uterus, with a thick, enlarged cervix, with ectropion

¹ Quoted by Skene, "Diseases of Women," p. 365.

² "Travaux d'Électrothérapie gynécologique." Archives semestrielles d'Électrothérapie gynécologique, fondées et publiées par le Dr. G. Apostoli, Paris, 1894.

of the lips and a profuse and offensive discharge—a condition forcibly suggesting trachelorrhaphy—disappear rapidly under a current of seventy-five milampères for ten minutes twice a week. An endometritis fungosa which sometimes fails to yield to curettage I easily cure by a moderate current without pain or annoyance to the patient. I have abandoned forcible dilatation of the cervix for curettage, relieving these cases more promptly and more easily by the galvanic current, and I hold it as a good rule to *never curette when the curette cannot be introduced without previous dilatation of the cervix.*

There is a class of cases where the symptoms point but in a vague way to the pelvic organs, and where a physical examination fails to find much the matter with uterus or adnexa. The symptoms are largely of a nervous or hysterical nature, there is little or no pain that can be localized, there is slight or no catarrh of vagina or cervix, and the patient reports a more or less prolonged use of glycerin tampons without benefit. I have found galvanism an easy cure for such cases. There seems to be some trouble with the endometrium or with the circulation in the pelvis, which the positive pole *intra uterum* relieves.

Of the Apostoli treatment of uterine fibroids I wish to report the results in nine cases, five colored and four whites. In two cases, one white and one colored, the tumors after treatment could not be detected by bimanual palpation. They were originally small, yet large enough to cause much trouble from pain and hemorrhage. In the white case the tumor was in the posterior wall of the uterus, causing constant pain in the abdomen and general symptoms of malnutrition. Two months of treatment cured this case. In the colored case the tumor was in the fundus and the chief trouble was painful and profuse menorrhagia. This case was under treatment two months with apparently absolute relief. I could detect no tumor, and three months after stopping treatment she again returned to me and I still was unable to find the growth. Two or three months later she was taken down with intense abdominal pain and flooding, and died in other hands, so that I am at a loss to explain the exact state of affairs.

The clinical reports recently collected by Apostoli in the above-mentioned volume bear witness to the disappearance of small and recent fibroids under electrolysis, a result which is not claimed or expected from the larger growths.

In four, colored, the growths reached the umbilicus, and the tumors were reduced one-third in size, with a disappearance of the symptoms for which they sought relief. These cases are symptomatically cured and are practically in the condition of those with fibroids who are yet not troubled sufficiently to undergo any treatment for their removal. This reduction in size is usually quickly reached, and further treatment, though continued a long time, fails to effect any further reduction. With this reduction the usual symptoms of pain and hemorrhage disappear or are improved *pari passu*.

In one case, white, though I got a reduction in the size of the growth of fully one-third, the menorrhagia and dysmenorrhea were slower to yield, and then only after I had used currents of three hundred milampères for ten minutes under ether. This case suffered so that she was quite willing to undergo a hysterectomy. I noticed also in this case, as in some others, what has seemed to me to be a reduction in the thickness of the abdominal wall itself. I know how difficult it is to assure one's self of this fact, and I give it for what it is worth. Whether there is a relationship between the uterine growth and a deposit of fat in the abdominal wall I am not prepared to say, but I have noticed a diminution, apparent only or real, in the abdominal wall after the reduction in the tumor, which seemed to me out of proportion to an apparent reduction due to greater suppleness of the skin from diminished tension.

Another case, white, is to me the most gratifying, because in the beginning I undertook its treatment with but little hope of improvement, and which has been most signally benefited. The patient was 52 years old and had a large, lobulated tumor extending above the umbilicus, with great abdominal tension and swelling of the legs. The probe entered the uterus six inches. The patient could not button her shoes. The hemorrhages were profuse. I used at first one hundred milampères for ten minutes every week, and then stronger currents, ranging from two hundred to three hundred milampères, under ether. The tumor was reduced a good third; her physician, who had kindly turned the case over to me, judged it a good half. With the reduction the pain disappeared and the hemorrhages declined to an ordinary menstruation. The patient left the hospital regarding herself as well. It is well known that those tumors which are active after the menopause are usually the soft variety of

myoma, of a malignant or semi-malignant nature, and require a complete hysterectomy for their cure. I do not say that this was the nature of this growth—it was in all probability not the case—but I do feel that the result obtained by electrolysis was a brilliant one.

As an offset to this case I have to report one which absolutely failed to yield to the most persistent use of the current. Beginning with moderate doses of fifty to seventy-five milampères twice a week, I increased them eventually to two hundred and even three hundred milampères under ether, and using even acupuncture with insulated needles instead of the pure copper electrodes, but without the slightest reduction in the size of the growth. In fact, when she left the hospital the tumor was up to the umbilicus and slightly larger than when she came under treatment three months before. This case was white, single, æt. 35 years, and had noticed the growth about a year. There was no great pain or hemorrhage, the uterine cavity six inches long, and the most careful examination could make out nothing but a lobulated fibroma, the larger portion on the right side. There was no parametric inflammation or evidence of diseased tubes or ovaries. The patient returned home, refusing to submit to the knife or further treatment. A letter written a month after her return describes her as feeling better generally, but without any reduction in the size of the growth. This case is interesting to me as being an exception, and I am totally at a loss to account for my failure. The current, in fact, seemed to aggravate, as there was always some increased swelling for two or three days following the séance, but which would go down before a reapplication.¹

The technique of Apostoli is now so fully described in our works on gynecology that it is unnecessary for me to go into its details, and I shall only speak of certain differences in my own application of his method.²

I have sought to make this technique as simple as possible. The central idea, to my mind, is to localize the current as much as possible and to use a current strong enough to disorganize the morbid growth without too great a reaction and within the

¹ I have learned since the above was written that she has improved greatly in her general health and has taken on flesh.

² See especially "Gynecological Electrotherapeutics," by Horatio R. Bigelow, M.D.

limits of safety—to produce, in short, an artificial catabolism. I have used mainly a Waite & Bartlett plug-and-socket battery of thirty cells; its plates are carbon and zinc, and its solution bichromate of potash and sulphuric acid. This battery, freshly charged and in good working order, gives me 150 milampères with the usual body resistance from well-placed electrodes. By hooking up two of these batteries and using the sixty cells I have gotten 300 milampères. But the high current and the smallness of the cells lead to rapid polarization, and the milampèremeter shows a rapid reduction in the current. The one battery is all that most patients can stand, and more current requires anesthesia. This battery, moreover, as a portable battery, is the best one I know in the market, and I can recommend it in every way. It is easily kept in order and new plates can be inserted without much trouble. I change the fluid quite often. I use a Waite & Bartlett milampèremeter whose internal resistance, as tested by a delicate Wheatstone bridge, is $\frac{2.5}{100}$ ohms. I have found this instrument most satisfactory. I use a Massey carbon rheostat made by Otto Fleming, of Philadelphia—a simple, cheap instrument which meets every indication as a current controller; when open its resistance is 1,110,100 ohms, practically a non-conductor, and when closed for the entire current it offers a resistance of $\frac{2.5}{100}$ ohms only. At equidistant points on its circle I have had the resistances tested, so I know exactly what the current has to overcome. I have fifty Edison-Lalande cells in my cabinet, the internal resistance of each cell being $\frac{8.7}{100}$ ohms. The electromotive force, however, is low, about $\frac{2}{10}$ volt, and therefore more cells are required. But it possesses the great advantage of little or no polarization or local action, the zines never require cleaning, the solution does not crystallize or “creep,” and there are no fumes.

I wish to call attention to the value of a Wheatstone bridge, a very valuable instrument, to my mind, in electrotherapeutical work, but too expensive, unfortunately, for the general practitioner.¹ It enables us to know exactly in each case how much we have reduced the body's resistance. In one case, for example, in a negress with a large fibroid, I found the resistance

¹ This instrument can be obtained from E. S. Greeley & Co., of New York, whose catalogue furnishes a good description of it. Any good work on electricity will show the principle on which it works. It measures from $\frac{1}{100}$ ohm to 1,111,000 ohms; it costs about \$100.

between the clay pad over the abdomen and the intrauterine electrode to be 2,426 ohms. When the clay pad was pressed more firmly over the abdomen the resistance was reduced to 2,167 ohms, a difference of 259 ohms, showing the importance of firm contact. Then, after passing a current of 75 milampères for ten minutes, the resistance was reduced to 269 ohms. Again, in a white woman with a large fibroid, with a pure copper wire (No. 8 English gauge) introduced six inches within the uterine cavity, and the clay pad over the abdomen—the abdomen having been poulticed three hours before the experiment, to soften the skin—the resistance was 761 ohms. After the passage of a current of 200 milampères for ten minutes under ether this resistance was reduced to 145 ohms. These two experiments show how the passage of a current for a few minutes prepares the way and reduces greatly the resistance, and indicates to us the necessity of gradually increasing currents when currents of great intensity are used. I see no mention of the Wheatstone bridge in the literature on the subject. It seems to me that a careful series of experiments with this instrument would help us to still further reduce the body's resistance. It must prove of value in indicating to us how perfect our connections are and the exact resistance we have to encounter, especially when we use strong currents. It assures us that our patient is in the best condition for the passage of the current. It may prove of value in giving us a clearer idea of the nature of the growth we have to deal with. Knowing the electromotive force of our battery, and with an accurate knowledge of the internal and external resistances in our electric circuit, we have all the factors in our formula and the problem is easily worked out.

After various trials I am convinced that the clay pad of Apostoli is the best material for the external electrode. I have found that a poultice to the abdomen, in the shape of a wet cotton pad, a couple of hours before applying the current, reduces somewhat the resistance by thoroughly softening the skin. It may seem a small matter to mention, but the rectangular clay pad fits best when placed diagonally.

Instead of the platinum intrauterine electrode invented by Apostoli, I have used the simple brass stems of Goelet, or, preferably, the pure copper wire, which I have easily fashioned into electrodes, and which can be passed the entire length of the uterine cavity. I use principally two sizes, No. 8 and No. 12

wire, English gauge. I insulate the vaginal portion with strips of adhesive plaster. With this simple arrangement I have used currents of three hundred milampères. The only disadvantage in using this metal in place of the platinum is the necessity of repolishing the brass or copper before each application—a minor consideration.

Apostoli teaches the importance, as a general rule, of using the positive pole within the uterus. I should regard this as quite an invariable rule, for all attempts to use the negative pole have been painful and followed by much discomfort.

It is hardly necessary to state the importance of aseptic or antiseptic precautions in any manipulations within the vagina and uterine cavity, also the avoidance of shock from interruptions of the current or too sudden differences of electrical potential. This may be avoided by careful connections of rheophores and electrodes and a good rheostat. If the surgeon, before he attempts to carry out the Apostoli treatment, will thoroughly understand Ohm's law and the principles of the electric current and electrical measurements, and then acquaint himself with the careful technique which Apostoli has so clearly laid down, he will not be disappointed in his results and will find in his hands a curative agent of great power.

115 JONES STREET.

LIGATION OF THE BROAD LIGAMENTS FOR UTERINE FIBROMYOMATA.

REPORT OF FIVE CASES.

BY

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THE various forms of treatment and the varied surgical operations for the removal of fibroid tumors of the uterus have in the past decade been one of the most prolific subjects of discussion in medical circles, and the end is not yet.

Abdominal hysterectomy, supravaginal amputation with or without the clamp, or extirpation through the vagina by morcellment, have each their advocates, while other operators of

note advise women with uterine fibroids which are giving no special distress to let them alone.

A certain proportion of uterine myofibromata produce symptoms which necessitate some operative procedure for their relief. Often the distress is occasioned by the association of a pus tube or an ovarian abscess, the diseased appendages, not the tumor, being the cause of pain and ill health.

Should an operator in such a case do a total extirpation? The operation done must fit the case and its varying conditions. If there be double tubo-ovarian disease it would seem wise to remove the uterus and both appendages, whatever the age of the woman, for a uterus without either tube or ovary is a useless organ. Its removal will not lengthen the operation or add to its dangers in the least.

If, however, the woman be young and only the appendages on one side be diseased, the question is pertinent: Shall we do a total extirpation if anything can be done to cause the fibroid to absorb? If this can be accomplished the woman is left essentially in as perfect a state as though she had never lost the appendages of one side. It cannot be denied that woman was created with these organs for a purpose, and if not diseased they are essential to the most perfect state of health during her menstrual life, even if she bears no children.

If the woman be under 35 to 40 years of age and the uterine fibroid can be absorbed and her uterus returned to its normal size and functions, and if one set of healthy appendages can be saved, it must be apparent to the most radical as well as to the conservative that it is the desideratum to be desired. It is truly conservative; it is just to the patient.

Shall we subject every woman who has a fibroid to total extirpation, even if she has no other symptoms than discomfort from the presence of the tumor? I believe that every fibroid tumor of very appreciable size should be dealt with surgically, either to cause its absorption or to remove it *in toto*. Fibroid tumors have been said to be benign. I have seen malignant degeneration in three fibroids, and in conversation with other operators of experience have learned that they, too, have frequently seen malignant disease develop in uterine fibromyomata.

Several years ago Gottschalk proposed to cause the absorption of uterine fibroids by ligating the broad ligaments, thus cutting

off a part of the blood supply and so modifying the nutrition of the tumor as to produce this result.

Dr. Franklin H. Martin, of Chicago, was the first in this country to carry out the suggestion, and it was by the reports of his successful results that I was led a few months ago to try it upon a young woman who would not consent to a hysterectomy, but who would let me do any operation which did not involve entering the abdominal cavity.

The original limits of the proposed operation were that the broad ligaments should be tied through the vagina. I have three times tied them through the vagina, and twice while I had the abdomen open for the removal of other diseased structures than the fibroid. In one of the cases in which I tied the ligaments in the abdomen I should have removed the tumor, because the woman was at the age of the climacteric, had I not been desirous of observing its effect in that particular case.

The results have been so satisfactory that it may be of interest to listen to a brief history of these five cases.

CASE I.—Miss McC., American, æt. 25, single, virgin, entered the Buffalo Woman's Hospital September 23d, 1894. The patient was anemic, having had almost constant uterine hemorrhage for fifteen months. She had hemic murmurs. The fundus of the fibroid uterus extended two inches above the umbilicus. Examination of its cavity revealed no submucous growths. On September 27th the base of the broad ligament, including the uterine artery, was tied through the vagina. The cervix was first incised as in vaginal hysterectomy, except that the incision was carried backward far enough only to sever the lateral utero-vaginal junction and at the same time not open into Douglas' pouch. Then pushing back the bladder and the ureters from the front of the cervix, the base of the broad ligament was easily reached and the whole mass ligated. The line of incision was then closed by a continuous catgut suture. The uterus was noticed in two days to have decreased in size and especially in hardness, having a boggy feeling on palpation. She was discharged on the eighteenth day after operation, the fundus of the uterus being easily felt just above the pubic symphysis. An interesting and, at the time, a very annoying incident of her history after operation was the high temperature which developed without any apparent assignable cause. On the second day the temperature went to 101° and the pulse

arose correspondingly. There was no evidence of peritonitis, no fetid discharge, no pus from the incision—everything was negative. Careful exploration of the chest revealed no bronchitis or pneumonia. The temperature continued to rise and on the fifth day was at 104° and the pulse 102. From this time it continued to fall and reached normal on the tenth day.

I have since seen the patient. She is hearty, full-blooded, and robust. The uterus is natural in size and her menstruation is normal in every respect.

CASE II.—Mrs. A., American, æt. 33, married fourteen years, sterile, entered the Buffalo Woman's Hospital September 26th, 1894. She has a fibroid of the uterus extending to a point midway between the symphysis and the umbilicus. She gives a history of pelvic inflammation three years ago, followed by almost constant pain in the left inguinal region. She has noticed the existence of the fibroid for about five years, during which period her menstrual flow has been too profuse and often too frequent. Examination under anesthesia discloses a large mass to the left of the uterus, which is probably a tubo-ovarian abscess. September 30th made an abdominal section; removed the left tubo-ovarian abscess out of dense adhesions and tied the base of the broad ligaments. Before she left the hospital the uterus was curetted for a persistent muco-purulent discharge. The patient went to her home on October 18th, eighteen days after operation. At that time the uterus had decreased rapidly in size. It is now entirely normal, but she menstruates more profusely than before her illness three years ago.

CASE III.—Mrs. G., American, æt. 48, married, had one child twenty-six years ago, was brought from a distance on a cot to the Buffalo Woman's Hospital January 21st, 1895. She is very anemic, having flowed profusely for the past six months. She has a fibroid of the uterus above the level of the umbilicus, and an ovarian cyst on the left side which has pushed the fibroid over to the right. The patient's abdomen is about the size of a seven-months pregnancy. February 5th the ovarian cyst was removed and the blood supply to the fibroid cut off by ligating the base of the broad ligament. The patient was discharged on March 9th, the fundus of the uterus being easily felt above the pubic bone. The further history is interesting and raises an important question. She has not menstruated since the operation and has continued to increase in flesh and strength. On April

20th she began to notice a fetid vaginal discharge, which rapidly became more profuse. In a few days her appetite left her and she began to have chills and fever. Her physician communicated with me and I asked him to send her back to me at once. On April 26th she returned to the hospital with a pulse of 120 and a temperature of $103\frac{3}{4}^{\circ}$. On the 27th of April, the following day, I dilated the cervix and removed from the inside of the uterus a sloughing submucous fibroid the size of a hen's egg. In forty-eight hours the temperature and pulse were again normal and the patient ready to return to her home. The uterus has contracted to its normal size.

CASE IV.—Mrs. S., American, *et.* 38, married, one child 13 years old, entered the Buffalo Woman's Hospital February 22d, 1895. This patient had been having menorrhagia, continuing about two weeks each month, for the past six months. During the past six weeks the flow has been constant, at times very profuse, necessitating tamponment. Examination under anesthesia shows an interstitial fibroid of the anterior uterine wall near the fundus, approximately the size of a hen's egg. The uterus was at once curetted and the broad ligament ligated through the vagina. The hemorrhage immediately ceased. On March 15th she was discharged and menstruated again March 25th, rather more profusely than she ought, duration eight days. In April her menstruation was still somewhat more profuse than normal for her. All traces, however, of the fibroid are gone, and I doubt not that the next menstrual flow will be normal in amount and duration.

CASE V.—Mrs. B., *et.* 45, American, married twenty-eight years, sterile, entered the Buffalo Woman's Hospital April 8th, 1895, with an interstitial fibroid of the uterus reaching nearly to the ribs on the left side, and on the right side extending to the margins of the costal cartilages. One year ago she refused to allow a hysterectomy for its removal, as she suffered no pain, her menses were normal, and her general health was perfect. The discomfort occasioned by the size and weight of the tumor was her only cause of complaint. On April 10th I tied the broad ligaments through the vagina. The patient returned to her home twelve days after operation. The fundus of the uterus was then one inch above the level of the umbilicus. She also noticed its falling from side to side when turning in bed, owing to the decrease in its lateral diameters. I have not seen her

since her return to her home, but on May 1st a mutual friend brought word from her to me that the tumor was still decreasing rapidly and that she was watching its departure with much satisfaction.

The results obtained in these five cases, even though they be only five, seem to prove that this operation is effective in causing absorption of the tumor. The course of Case No. 3, from whom I later removed the sloughing submucons growth, seems to raise the question whether this operation will cause their absorption or necrosis. There is need of further experimentation to determine whether this slough was caused by the deficient blood supply or whether it was merely a coincidence. The uterus evidently began its efforts to extrude the mass, because the patient gave a history of pain antedating the fetid discharge, hence the uterus may have caused its necrosis by pressure, as it often does.

Many operators will object to substitute this conservative operation for the more brilliant hysterectomy. A surgical operation should be done solely with a view to the best interests of the patient. Unfortunately too often the brilliancy of the operation, not the best interests of the patient, actuate the operator in his work. Fortunately, however, the real brilliancy of our work resides not in that which brings forth the plaudits of those who frequent our operating rooms, but in the ultimate results of that work upon which our patients and the public will surely pass judgment.

There is no more danger in this than in an Emmet's operation. If the tumor be large there is more difficulty in reaching the broad ligament, as the tumor is apt to lift out of the pelvis by its growth. Furthermore, fibroids occur more frequently in unmarried women or sterile women, in whom the vagina is small, thus adding to the difficulties of the operation.

If, as a result of this operation, a uterine fibromyoma absorbs and the uterus returns to its normal size and functions, is it not better for the patient in its ultimate results than a hysterectomy? Especially is this to be desired if the woman be young, as was my first case. She may bear children if she marries.

This operation is not applicable to all fibroids. Very large, hard tumors will not be benefited by it. Tumors which spread out widely in the broad ligaments, displacing the uterine arteries upward, are not appropriate for it. Very large tumors are

apt to rise high in the pelvis, making it difficult to get at the broad ligaments, especially as fibroids so frequently occur in sterile women whose vaginas are narrow, thus adding to the difficulties of the operation.

The fibroids in which this operation will be found most effective are those of medium size, soft, bleeding tumors. The softer the tumor and the more hemorrhagic it is, the more liable is it to absorb after this operation.

There is merit in the operation in properly selected cases. It is conservative. It does not prevent more radical procedures later, if they be necessary.

64 RICHMOND AVENUE.

A CONTRIBUTION TO THE STUDY OF ALBUMINURIA DURING PREGNANCY.

BY

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It is the purpose of this effort to gather into appreciable shape some conclusions drawn from an observation of a number of cases of albuminuria in the clinic of the Free Lying-in Hospital of the University of Maryland.

In all of the cases pregnancy was advanced to seven and a half months at least. They were kept under strict and constant surveillance, a specimen of the urine being examined at least once each day, and in some instances twice, by both chemical and microscopic methods. The work was conducted with a view to investigating as much as possible (1) the relation between albuminuria and renal pathology of whatever nature, organic or functional, acute or chronic, and (2) the relation between albuminuria and that toxemia which, for want of a better or more descriptive term, pathologists call "uremia." In a series of twenty cases observed in one hundred and sixty women, the most careful search could find no evidence of organic kidney disease in fifteen, one gave evidence of acute tubular nephritis, four showed chronic tubular nephritis, and in no case was there evidence of either the "chronic interstitial" or the "amyloid" form of kidney disease. It is to that class of albuminurias not

coincident with organic kidney lesions that I shall devote most attention.

It is but fair at this juncture to refer to the meagre facilities which were at hand for pursuing the microscopic examination of the urine. An exhaustive study of micro-urinary pathology requires that the sediment from the whole amount voided in twenty-four hours be so concentrated that a specimen from this sediment contains, *ceteris paribus*, a fairly representative amount of the indications to be sought. This result cannot be accurately obtained unless the "centrifuge" be employed. The urine should also be examined before alkaline fermentation begins, for this reaction seriously changes the integrity and appearance of the tube casts. The "centrifugal machine" mentioned is an apparatus designed to immediately separate from the urine, by rapid motion, all solid matter suspended in it. This, of course, can be done at once before changes in the urine can take place. I had no "centrifuge," and could examine the sediment from only a small quantity of urine at a time, it being faintly acidified to prevent the alkaline changes. However, it was repeatedly and carefully examined from the first appearance of the albumin until no more could be detected by the most delicate tests. The fact that ideal means were not at my command must of course exert a relative influence on the deductions and conclusions I am to draw, both as to their import and their correctness. The statement that microscopic and other methods repeatedly failed, in seventy-five per cent of the cases, to show any coexisting organic kidney lesion would seem to point to the conclusion that a majority of the albuminurias in pregnant women are not dependent on such a lesion, either temporary or permanent.

We must look, therefore, for an explanation of this condition of the urine either to a perturbed kidney function, possibly due to a condition which the microscope does not or cannot show (in the present state of our knowledge), or presumptively to some abnormal blood constituency, which blood, by reason of its influence on the kidney, so modifies the renal function that albumin is allowed to escape from the blood into the urine. In the light of the orthodox kidney pathology of to-day, the cause of renal albuminurias of this class is referred to abnormal kidney functioning *per se* rather than to any modification of that function wrought by an abnormal state of the blood. The

theory of Mahommed, viz., "that pregnancy is associated with an increased blood pressure in the kidneys," undoubtedly accounts for many of these albuminurias, they of course being simply the result of altered mechanical conditions.

On the basis that the efforts of a parturient woman are conducive to a correspondingly increased general blood pressure—which efforts are of course greatest during the second stage—and with a view to studying the relation of heightened blood pressure to the presence of albumin in the urine, I have in twenty-four women examined a specimen of urine obtained just at the beginning of labor, one at the end of the first stage, and one at the conclusion of the labor. In sixty per cent of those whose urine showed not a trace of albumin before labor, or in some instances at the end of the first stage, I found it to be present after labor in greater or less amount, depending on the length and severity of the second stage. These albuminurias are of course transient, disappearing in two to four hours. In those in which none was found the labor was accomplished with a minimum degree of effort. Then, again, in eight cases in which urine was albuminous before labor, without any explanatory organic kidney lesion and possibly due to high blood pressure, the amount of albumin was found to be increased after the completion of the labor, the increase being relative also to the length and severity of the second stage. In a few hours the albumin had entirely disappeared, the conditions favoring high blood pressure having been removed.

These observations, then, would seem at least to suggest a very pertinent relation between heightened blood pressure and albuminurias of the class now under consideration. This statement, however, is not to convey the idea that all albuminurias not explicable by the presence of organic kidney lesion are to be accounted for on the basis of mechanical causation.

As before suggested, an abnormal or toxic condition of the blood may bear some causative relation to albuminuria by so interfering with the renal function as to permit the escape of albumin into the urine. This latter notion, confessedly hypothetical and certainly not orthodox, has occurred to me while reading the exhaustive account of "A Study of Uremia" by Hughes and Carter.¹ Their deductions from many carefully conducted experiments bearing on the causation of uremia are:

¹ American Journal of Medical Sciences, vol. cviii., Nos. 2 and 3.

(1) that the assimilation and metabolism of nitrogenous food in the human body give rise to a product or products (presumably albuminous) which, circulating in the blood, prove toxic, especially to the nervous system, and indeed constitute the causal factor operative in the phenomena of uremia; (2) and, further, that these same toxines (if they may be called such) are responsible for the "kidney condition" on which uremia is ordinarily thought to depend, making the renal condition often the result rather than the cause operative in the production of the toxemia. Now, is it not possible that these poisonous elements circulating through the kidney may (if only mildly virulent) so interfere with its function as to allow albumin to escape into the urine, without necessarily causing an organic lesion or otherwise manifesting their presence in the blood?—considering, of course, the probability that the greater the amount or virulence of the toxines, and the less the ability of the kidney to resist their influence, the more profound will be their impression on that organ and its function? If this supposition be admissible, then it is nothing strange that albuminuria is so frequently and peculiarly encountered in pregnancy, the woman having to do both the assimilation and excretion of her fetus in addition to the ordinary performance of the functions incident to her own metabolism, thus putting an extra amount of work on her kidneys which taxes them too heavily, as the condition of the urine but too plainly shows.

Of course it is but a mere platitude to say that if we find albuminuria accompanied by evidence of organic kidney lesion—viz., casts, renal epithelium degenerated or not, blood cells, etc.—then we are to seek no further for its explanation, especially if collateral evidence of kidney disease, either acute or chronic, be obvious.

The foregoing conclusions would seem to furnish a somewhat tenable basis for the consideration of some phases of the relation between albuminuria and uremia. We have long been accustomed to regard this condition of the urine as a danger signal much to be heeded and indeed never to be despised, even though albumin be present in only the faintest trace, for the amount is no indication as to the gravity of the condition its presence indicates. In whatever amount or with whatever constancy found, its import may be, on the one hand, simply to show a slightly disturbed kidney function, harmless enough in

itself, or, on the other, to herald the gathering storm clouds of a toxemia whose momentous and awful thunder is heard in its gravest and most terrible consequence—*eclampsia*.

Only a most careful, thorough, and systematic examination of the urine, both chemical and microscopic, together with a consideration of any auxiliary evidence available, will be sufficient to interpret the meaning of an albuminuria, and even this often fails to satisfy the conscientious investigator. In the twenty cases under observation seventy-five per cent could not be shown to have any connection with a coexisting organic renal lesion, and consequently did not suggest the probability of such dire results as might have been expected had the kidney function been further crippled by organic trouble. Nevertheless the albuminuria betokens distressed renal function, which stress, if long continued, might to such an extent interfere with the elimination ordinarily done by the kidney as to lead to uremic intoxication and possibly to permanent organic kidney disease. Taking the hypothesis that uremia is the consequence of a toxic amount of products resulting from nitrogenous metabolic processes, albuminuria may indicate that the kidney function is compromised to a greater or less extent and may not accomplish the proper elimination of these substances, whether the compromise be due to excessive blood pressure, or, as before suggested, to the influence of these substances on the kidney itself, or to any other factor. This possibility should impress upon us the necessity of preventing the accumulation of these noxious materials by methods that shall later receive consideration. But let us remember that albuminuria does not always mean uremia and does not necessarily go hand in hand with it; for eclampsia has been known to occur without the previous presence of even a trace of albumin, and, on the other hand, in twelve of the twenty cases under my own observation not the slightest evidence of uremia could be noted, although the amount of albumin present varied from a mere trace to as much as sixty per cent (ocular estimate) and remained in the urine during a period varying from three days to a month. This fact lends some color to the probability that the kidney function may for quite a while be disturbed and perverted enough to cause an albuminuria, but not enough to evidently compromise its eliminative duty for the time being; since so long as the renal activity is sufficient to keep the organism freed from an excessive

or toxic amount of noxious substances, albuminuria cannot indicate the presence of these toxins in adequate amount to do appreciable harm.

But it must be also remembered that, however slight, albuminuria of renal origin always means an abnormal kidney function, and always indicates the possibility and (if proper auxiliary evidence be present) the probability of uremia with all its dread and grave results. Therefore it is a duty that every conscientious obstetrician owes his patient, her unborn child, and himself to accurately appreciate the import of albumin in the urine of a pregnant woman, and to regard its presence there with serious concern; for by prompt and early interference much can be done to rob uremia of the ghastly spoils it is daily claiming among pregnant, parturient, and puerperal women, and to obviate or ameliorate the sadness that has followed in its wake.

Of course, if albuminuria is found to be coincident with organic kidney lesions, we can then be reasonably certain that the renal process cannot display the proper amount of activity, especially under the extraordinary conditions obtaining during pregnancy, and, indeed, is extremely liable to very serious and sometimes sudden compromise, the gravity depending on the extent to which the kidney is crippled and on the amount of work it has to perform.

Albuminuria, then, is simply an indicative symptom. Its meaning and import must be determined by the gravity of any coincident pathological renal condition (as shown by the urinary examination) and by the presence and degree of severity of the general manifestations of kidney disease.

The treatment, therefore, is to be directed to the condition or set of conditions with which the albuminuria is connected or on which it is dependent, and its permanent disappearance will signify that the harmful processes or conditions with which it is related have become inoperative.

Most naturally the therapeutic indications are suggested altogether by the condition of the kidney, the amount of elimination it can probably do, and the probable amount of noxious substances in the body to be eliminated, which latter condition can only be made evident by the signs of uremic intoxication.

In every instance it is wise to curtail the further production of toxins by restricting the amount of nitrogenized food. An exclusive diet of milk seems to fulfil the indication admirably,

Case No.	Uremic or other symptoms.	Urinalysis.	Treatment.	Results.
1	None observed	Albumin twenty-five per cent (ocular estimate) ¹ ; amount normal; acid; specific gravity 1020; no casts or renal epithelium.	Exclusive milk diet; pulv. jap. co. 3 i. every other morning.	Disappearance of albumin in ten days and no recurrence.
2	Slight buzzing in ears; flashes of light before eyes and dimness of vision; insomnia; persistent headache; edema of eyelids.	Amount normal; acid; specific gravity 1012; albumin twenty per cent (approximate); no casts or renal epithelium.	Exclusive milk diet; pulv. jap. co. 3 i. every other morning; infus. digital. 3 ij., and acetat. potassii gr. xx., every four hours.	Disappearance of albumin and uremic symptoms in twelve days, without recurrence.
3	None observed.....	Amount normal; acid; specific gravity 1018; albumin slight trace; no casts, etc., or other evidence of organic kidney disease.	Diet of non-nitrogenous food and milk; pulv. jap. co. 3 i. every other morning.	Disappearance of albumin in ten days and no recurrence.
4	None observed.....	Amount normal; acid; specific gravity 1014; albumin trace; no casts, kidney epithelium, etc.	Exclusive milk diet; pulv. jap. co. 3 i. every other morning.	Disappearance of albumin in ten days and no recurrence.
5	None observed.....	Amount normal; acid; specific gravity 1012; albumin twenty-five per cent (estimated); no casts, etc.	Exclusive milk diet; pulv. jap. co. 3 i. every other morning.	Disappearance of albumin in ten days and no recurrence.
6	Nausea, headache, insomnia; dim vision; irritable bladder; edema of eyelids four days before labor.	Amount normal; acid; specific gravity 1020; no casts or other evidence of organic kidney trouble; albumin fifteen per cent (ocular estimate).	Exclusive milk diet; pulv. jap. co. 3 i. every morning for four days; infusum digitalis 3 ij., and acetat. potassii gr. xx., every four hours.	Disappearance of albumin and uremic symptoms; labor completed safely; post partum specimen showed albumin thirty-five per cent (estimated); both albumin and signs of uremia entirely disappeared in twenty-four hours after labor.

¹ This is merely a comparative ocular estimate.

7	None observed.....	Amount normal; acid; specific gravity 1012; albumin sixty per cent (estimated); no casts, etc.; after ten days reduced to five per cent (estimated).	Exclusive milk diet; pulv. jalap. co. 3 i. every other morning.	Disappeared entirely after labor, thirty days after first examination.
8	None present.....	Amount normal; acid; specific gravity 1012; albumin slight trace; no casts or any other evidence of organic kidney lesion.	Non-nitrogenous diet and milk; pulv. jalap. co. 3 i. every other morning.	Albumin did not disappear entirely until labor was completed, twenty-three days after first examination.
9	Slight, persistent headache.....	Normal amount; acid; specific gravity 1018; albumin twenty per cent (estimated); no casts, epithelium, etc. (renal).	Exclusive milk diet; pulv. jalap. co. 3 i. every other morning.	Disappearance of albumin and headache in three days.
10	None observed.....	Amount about normal; acid; specific gravity 1013; microscopic examination negative; albumin slight trace.	Exclusive milk diet; pulv. jalap. co. 3 i. every other morning.	Disappearance of albumin in nine days; no return.
11	Headache, nausea, anorexia; flashes of light and other vague subject evidence of uremia; confined (two days' labor); very nervous and irritable; convulsions seeming imminent toward end; edema of hands and eyelids.	Amount small, high colored; very acid; specific gravity 1024; albumin fifty per cent (ocular estimate); casts, granular, epithelial, blood, and hyaline; renal and blood cells.	<i>Sedative</i> : Morphia and atropia hypod.; potass. bromid. gr. xx. every three hours. <i>Eliminative</i> : Infus. digitalis 3 iij. and acetat. potassii every four hours. Exclusive milk diet; pulv. jalap. co. 3 i. every morning for five days.	Labor completed safely; albumin disappeared with uremic symptoms five days post partum.
12	Patient had eight convulsions before being seen; deep coma; features obliterated by edema; limbs very edematous; eight and three-quarter months advanced. (<i>Out-Patient Clinic</i> .)	Amount not known, but very small; acid; specific gravity 1022; albumin fifty per cent (ocular estimate); hyaline and epithelial casts; examined only once.	Immediate delivery; morphia, chloroform, bromide of potash and chloral, croton oil grt. i., steam bath, and hot packs. <i>Stimulation</i> : Strychnia, whiskey, nitroglycerin, and ammonia hypod.; bleeding or arterial sedation by other means not indicated, as blood pressure was not excessive.	Patient died eighteen hours after delivery, from shock and profound uremic intoxication; child lived and was doing nicely when last "heard from."

Case No.	Uremic or other symptoms.	Urinalysis.	Treatment.	Results.
13	Headache with nausea and vomiting; excessive general edema at beginning of ninth month. <i>History:</i> Nothing with regard to measles, scarlet fever, etc., but patient's eyelids and ankles had been edematous two years; she had not been able to confine herself exclusively to milk diet advised.	Albumin sixty per cent (ocular estimate); acid; specific gravity 1010; amount voided daily about sixty ounces; hyaline and granular casts both found, also renal epithelium tubular.	Patient applied at hospital for treatment three weeks before confinement; given infus. digital. 5 iij. and acetat. potas. gr. xx. every four hours, pulv. jalap. co. 5 i. every other morning; exclusive milk diet. After coma set in hot pack every fifteen minutes, and half-hour whiskey, strychn. nitrat., nitroglycerin, digitalin, etc., hypodermatically. <i>Preparations to labor:</i> Infus. digital. 5 iij. and potas. acetat. gr. xx. t.i.d.; pulv. jalap. co. 5 i. twice each week. <i>During labor:</i> Stimulation to heart and sedation to nervous system—bromide, chloral, etc.; patient lost much blood by reason of retained placenta. <i>After labor:</i> Digital., acetat. kali, and pulv. jalap. co. continued; exclusive milk diet. Patient kept on this treatment three days after disappearance of albumin.	Labor safely terminated; swelling entirely gone by eighth day, slight trace of albumin and casts remaining; patient suddenly developed a profound coma on eleventh day and died in nine hours in spite of every effort at elimination and stimulation; "no post-mortem."
14	<i>Ten days prior to confinement:</i> Headache, nausea and vomiting, and subjective evidence of uremia; no edema; the symptoms out of all proportion to amount of albumin. During labor no special uremic evidence, with exception of very irregular blood pressure and pulse rate. Patient had no post-partum evidence of uremia.	<i>Ten days before labor:</i> Albumin trace; acid; specific gravity 1014; casts both hyaline and granular; amount voided about normal; examined every two days till labor, then continued trace of albumin and casts as above; after labor examination revealed albumin seventy-five per cent (estimated), with casts, hyaline and granular, and some tubular epithelium.	Exclusive milk diet; pulv. jalap. co. 5 i. every other morning.	Patient completed labor safely, the loss of much blood probably contributing to this result; on second day after confinement urine voided in morning contained much albumin, while that voided at noon contained not a trace.
15	None observed.....	Albumin about ten per cent (ocular estimate); specific gravity 1020; no casts or renal epithelium; average amount urine passed in twenty-four hours twenty-five ounces.		After two weeks' treatment albumin reduced to mere trace. (Not yet confined.)

16	None, except very slight headache; no edema; patient after labor had headache and disturbances of vision.	Albumin fifteen to twenty-five per cent (approximate); specific gravity 1010; epithelial, but principally granular, casts; amount urine passed in twenty-four hours thirty ounces (analysis ante-partum, covering a period of nine days). <i>Post-partum analysis</i> : Albumin twenty-five per cent (estimated); specific gravity 1010; casts, many granular; urine scant immediately after delivery, but under treatment increased to about fifty ounces in twenty-four hours.	<i>Ante-partum treatment</i> : Exclusive milk diet; pulv. jalap. co. 3 i. every other morning. <i>Post-partum treatment</i> (foriceps): 3 vi. milk every two hours; 5 i. pulv. jalap. co. potass. acetat. gr. xx., and infus. digitalis 3 iij. every two hours.	In course of a week under the ante-partum treatment albumin reduced to a trace, also diminution in casts; during first stage albumin twenty-five per cent and casts. <i>Post-partum</i> : Urine (upon catheterization) found to contain twenty-five per cent albumin and many granular casts, which, under the post-partum treatment, successive analyses showed decrease of albumin, and after twenty-four hours post partum no albumin at all; secretion of urine increased from six ounces during first six hours post-partum to twenty-nine ounces during last six hours of the twenty-four immediately after delivery. Patient doing well. Albumin reduced to trace; persisted until labor (twenty days): increased to thirty per cent immediately after labor, and disappeared entirely in three days thereafter. Reduced to slight trace and was present until labor; post-partum specimen showed specific gravity of 1024 and albumin twenty per cent, which entirely disappeared one day after labor. Reduced to slight trace; continued until labor; post-partum specimen showed fifteen per cent, which disappeared entirely in three days. Reduced to mere trace in five days; disappeared entirely in eight days.
17	None observed.....	Amount normal; acid; specific gravity 1014; albumin ten per cent (estimated); microscopic examination negative.	Exclusive milk diet; pulv. jalap. co. 3 i. every other morning.	
18	None present.....	Amount normal; acid; specific gravity 1017; albumin five per cent (estimated); no casts, epithelium, etc. (examined eight days before labor).	Exclusive milk diet; pulv. jalap. co. 3 i. every other morning.	
19	None observed.....	Amount normal; acid; specific gravity 1014; albumin ten per cent (estimated); no casts or other evidence of organic kidney disease.	Exclusive milk diet; pulv. jalap. co. 3 i. every other morning.	
20	None observed	Amount normal; neutral; specific gravity 1018; albumin five per cent (estimated); no microscopic evidence of organic kidney lesions.	Exclusive milk diet; pulv. jalap. co. 3 i. every other morning.	

serving at the same time as a mild diuretic. I have frequently seen albumin disappear altogether by the use of this measure alone. This result would seem to add some force to the proposition that albuminuria is often due to the presence and influence of these toxic materials.

Excellent results may be gained by employing a mixed diet of foods poor in nitrogen—viz., bread, butter, fruits preserved or fresh, vegetables in limited amounts, etc.—of which only a sufficient quantity to sustain nutrition should be taken, for any excess has to be eliminated by an already overworked kidney. This measure greatly relieves the kidney and puts it in a position to more effectually and quickly recover.

Further, if circumstances demand or even justify it, the elimination of the harmful materials already in the organism may be both hastened and accomplished by the use of the other emunctorial channels, the bowels and the skin. The indications for using one or both of these, as well as the degree to which their functions should be stimulated, must be suggested by the merits of each individual case. They should in all cases be kept active. The bowels may be "appealed to," with very satisfactory results, by the frequent administration of the compound jalap powder, say in drachm doses every other morning, or any of the hydragogue cathartics, especially the salines, will be found useful. As to the skin, its action may be encouraged by resorting to the hot bath, the steam bath, the hot-air bath, or the hot pack. The employment of the medicinal diaphoretics, especially pilocarpine, is not indicated except as a last resort, and even then the use of this agent should be extremely guarded, for the reason that pulmonary edema is very often the result, and the burden of cardiac depression is added to the patient, possibly already struggling for life. It is probably neither wise nor necessary to unduly stimulate the skin function unless signs of beginning uremia are evident, and even then their gravity should dictate both the method and the extent and frequency of its employment. The wisdom of the use of the stimulating diuretics to aid elimination by the kidney is much to be questioned, at least in those cases not showing symptoms of uremic intoxication, for it seems grossly unjust to goad on an already crippled organ when the same or a better result may be gained by the timely and judicious use of the eliminative powers of the bowels and skin. The high blood pressure conditions incident

to pregnancy cannot be overcome until delivery is accomplished, but it is not my purpose to refer to the indications for the induction of premature delivery. The above principles of treatment, in addition to the fulfilment of any symptomatic indication that may arise, if prudently employed will bring much relief to the kidney laboring under untoward circumstances, and yield grateful and lasting satisfaction to the conscientious "man of medicine" in whose hands the destiny of so many innocent lives reposes.

PUERPERAL ECLAMPSIA.¹

BY

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THE following case presents a record of exceedingly happy conditions after the exhibition of *veratrum viride* with *morphia* and *atropia* (hypodermatically given) to control puerperal eclampsia, conjoined with the injection into the uterus of sterilized glycerin to promote the evacuation of that organ.

There is nothing absolutely new in it, but the facts detailed are sufficiently interesting to elicit comment and discussion—the prime object, as I take it, of this and similar organizations.

As it is my own first experience with the therapeutical combination, I may be excused for being greatly impressed by the results, and very grateful to Dr. King for what seems to me an exceedingly valuable lesson.

In October, 1893, while away from home, I received a letter from a physician in a near-by city, requesting me to take charge of the case of a young married lady who was, with her husband, coming to reside in Washington, and who expected her first confinement about the beginning of January, 1894.

She was seen by me for the first time on November 2d and presented a perfect picture of well-developed physique, robust health, and good looks generally. From her general make-up one would as soon, I think, have dreaded childbirth

¹ Read before the Washington Obstetrical and Gynecological Society December 4th, 1894.

for a young squaw of the plains. But further acquaintance with her mode of life was less reassuring. She was found to be very reckless in regard to some of the most ordinary health precautions: positively refused to wear flannel or silk on the upper portion of her chest, claiming that pharyngitis or laryngitis always resulted from covering her neck in that way. It is needless to say that fondness for dress and for the display of lovely neck and arms was father to this delusion. An ardent housewife, and preferring to do the marketing herself, she doubtless frequently had her lower extremities chilled, her feet not being properly protected. In fact, I "spotted" her from time to time in many imprudences likely to impair the function of the skin and throw extra work upon the other excretories.

Her urine was examined carefully at short intervals, at first with negative results, but about the 1st of December albumin in definite but small quantity (one-twelfth by volume) made its appearance.

Dr. A. F. A. King, on whom I always lean in obstetrical difficulty, was at once consulted. The usual measures of diet and medication were urgently advised and no efforts spared to have them carried out. But although no casts could at any time be found, albumin persisted, reaching as high as one-sixth by volume, but varying from time to time without progressive increase. It was determined not to interfere with gestation unless some more serious symptoms developed. On careful inquiry January 22d was found to be about the day on which labor should be expected. Judged by qualitative analysis and the general condition of the patient, elimination of urea was fairly good, and the gestation continued to progress without serious disturbance. Moderate edema and slight urticarions manifestations, with not unusual nervous phenomena, constituted the *résumé* of troublesome features until January 16th.

On the morning of that day she suffered violent cramps of abdominal muscles and complained of tumultuous movements of the fetus. Examination of cervix and os uteri showed that labor was not imminent, and pointed directly to the renal complications as the source of disturbance. Palliatives were used.

At 6 p.m. the husband came to announce a convulsive seizure. I reached the patient in five minutes and Dr. King in fifteen.

Dr. Green, of the navy, had already responded to the emer-

gency. On arrival I found the condition of the os and cervix still the same. The patient was rallying from the convulsions. The os was immediately dilated by my finger until the head could be felt through the membranes, presenting in normal (L. O. A.) position. An attempt was made to administer chloral and bromides by mouth and rectum, but not very successfully. On the arrival of Dr. King it was determined to employ *veratrum viride*. While I hurried to a drug store, within half a block, another and violent convulsion occurred. The patient immediately received a hypodermatic injection of ten drops of the fluid extract of *veratrum*, one-ninetieth of a grain of atropia, and one-third of a grain of morphia. (The bladder and rectum had, of course, been evacuated and diaphoresis solicited by hot-water bottles and blankets.) Within a few minutes after the administration of this injection the pulse came down to about sixty beats per minute, the patient expressed herself as feeling comfortable, and thereafter no convulsive seizure, or severe threat of one, occurred. She now received, by mouth, ten grains each of calomel and jalap with five grains of compound extract of colocynth.

It being found impossible to proceed satisfactorily without anesthetization, I administered ether; the patient was brought to the edge of the bed, Dr. Green and the nurse keeping her in proper position, while Dr. King, with due precaution against the introduction of air, sepsis, and the rupture of membranes, injected about half an ounce of sterilized glycerin well up into the uterine cavity. The catheter, large and soft, was left *in situ* and the vagina tamponed with cotton soaked in glycerin.

True labor pains set in at 5 A.M., the patient sleeping soundly between the contractions, and until delivery at 3 P.M. the process was normal and satisfactory in every respect. The infant (a nine-pound boy) was, of course, in a condition of uremic narcosis and required prolonged efforts to establish respiration.

The mother's recovery was somewhat retarded by an agonizing periostitis of the left tibia, setting in about a month after labor, and due to a fall on the stairs not previously reported to her physician, though having occurred a few days prior to parturition. This required two operations, the last under chloroform. Both mother and infant, however, continued to do well and have recently been reported in excellent health.

Dr. Charles Jewett,¹ of Brooklyn, N. Y., says the credit of first calling attention to the use of veratrum in the treatment of eclampsia is due to Dr. Herbert Fearn, of Brooklyn, N. Y.²

In the discussion Dr. A. F. A. King, of Washington, says he suggested it upon theoretical considerations more than twenty years ago in the first medical paper he ever wrote, and which was published in the *New York Medical Journal*, October, 1865, page 31.

The employment of glycerin by intrauterine injections to excite labor pains is, I believe, due to Dr. C. Pelzer, assistant physician to the Provincial Institute for Obstetric Nurses, Cologne.³ The report of five of his cases induced Dr. J. Clifton Edgar, of New York, to experiment in two cases, reported in the *Medical Record*, November 26th, 1892.

¹Transactions of the American Gynecological Society, vol. xii., for the year 1887, pp. 319-331, "Note on the Treatment of Puerperal Eclampsia."

²"Veratrum in Large Doses as a Substitute for Blood-letting in Puerperal Convulsions," AMERICAN JOURNAL OF OBSTETRICS, 1871, p. 28.

³"Erregen der Wehenthätigkeit durch intrauterine Injection von Glycerin," by Dr. C. Pelzer, Assistant Physician to the Provincial Institute for Obstetric Nurses, Cologne. Read before Der Gesellschaft für Geburtshülfe und Gynäkologie zu Köln-a-Rh. Archiv für Gynäkologie, No. 42, vol. ii., pp. 220-228, Berlin, 1892.

He records satisfactory results in seven cases by using this method. He employs chemically pure, sterilized glycerin. A hundred cubic centimetres are thrown up between the membranes and uterine wall. Full precautions are taken not only against sepsis, but also against the entrance of air into the uterine cavity. In a short time regular pains set in. The membranes present well and labor is usually easy. In two cases where labor was induced on account of contracted pelvis the pains set in in the first case within half an hour, in the second after an hour. In a third case the patient was at the end of the thirty-second week of pregnancy. For fourteen days she had been flooding. There was placenta previa lateralis and a temperature of 104°. Glycerin was injected and pains set in in an hour and a half. Bleeding occurred two and a half hours later. Turning was performed and a dead child was delivered. The mother recovered.

Glycerin injections are, in Pelzer's experience, valuable not only for the induction of premature labor, but also for accelerating delivery at term. In uterine atony they prove very efficacious.

In an appendix he says that in "Kehrer's Lehrbuch des operativen Geburtshülfe" glycerin-cotton tampons are recommended to be introduced into the cervix, but no mention is made of intrauterine injections.

TREATMENT OF PUERPERAL SEPSIS.¹

BY

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WHILE advances have been made in medicine and surgery, obstetrics has not lagged behind, as witnessed by the treatment of puerperal sepsis. That these changes have been radical is evident to any one who will compare the text book of to-day with that of a few years ago, or will compare the literature of the present decade with that of the past.

To what is this radical change due? Why is it that we no longer bleed and purge, or give opiates and apply abdominal stupes? Not to conjecture, not to chance, not to personal prejudice and likes, but to a scientific reasoning based upon the bacteriologist's and pathologist's research.

Let us study for a moment, then, the etiology and pathology of this form of sepsis. There is no longer any question that we have to deal with a septic condition, or that the cause is to be found in the invasion of pyogenic organisms. I have heretofore contended that the accoucheur alone is to blame for this trouble, but I have modified my views, basing my opinion upon cases of peritonitis where the infection was a result of disease antedating childbirth or pregnancy, and the easy possibility of infection occurring during the puerperium, as it did in these cases in mind.

We are aware that pre-existing pyosalpinx or other pelvic trouble, such as tumors, etc., may be the cause of post-partum sepsis. I have recently seen, assisting in the operation for its removal, a large dermoid that had undergone suppuration as a result of trauma to the tumor during labor. We know also that tumors may become gangrenous from pressure or twisting of the pedicle during labor.

¹ Read before the Kentucky State Medical Society, meeting of June 12th, 13th, and 14th, 1895.

Pre-existing gonorrhea may cause sepsis, as may any pathological condition of the genital organs which antedates delivery. The conditions are often not discovered until too late to institute prophylaxis. Those pre-existing conditions we will not consider in this paper.

Notwithstanding the fact that infection is most frequently from the hands, instruments, or dressings of the obstetrician or nurse, as shown by the marked decline in the occurrence of post-puerperal trouble since the introduction of aseptic methods in midwifery, there may also be local conditions in the genital tract below the internal os which play an active part in promoting infection and without which it would not occur. Among these are laceration of the soft parts, however slight, and the more extensive changes following tardy labor in the second stage.

Organisms, among them often infectious ones, are constantly resident in the vagina, and these find easy access through the abrasions in the soft parts. The gonococcus may invade the deeper structures, or even, after delivery, infect the uterine mucosa, tubes, ovaries, or peritoneum. The changes and local conditions are manifold, varying from an endometritis to a purulent metritis, from a slight sapremia to a septicemia or pyemia.

In the production of pus tubes puerperal infection is one of the most frequent causes. The open surface left in the uterus by the detachment of the placenta in labor at term or after abortion affords an excellent point of ingress for pyogenic organisms. "The enlarged lymphatics and blood vessels torn across, the processes of degeneration following the completed term of pregnancy, almost pathological, afford a most receptive surface for absorbing, developing, and diffusing the slightest contamination by septic matter. An amount of septic matter will suffice to infect a woman under these conditions which would be resisted and overcome by the normal non-gravid uterus."

The treatment is dependent directly upon the condition present, so that the differentiation of the changes which have taken place is all-important. We must consider in our treatment those cases where the genital tract has been normal before labor and those cases where a lesion exists at the time of labor. Among the latter, as I have said, may be mentioned various pelvic and abdominal troubles which might properly be included under the head of preventive treatment. The indications for treatment of

such conditions, when discovered before pregnancy, are very plain, and there is no longer any question as to the course we should pursue.

Under the head of preventive treatment it is necessary, then, to examine carefully into the history of the patient for pre-existing troubles of this nature, also for gonorrhea, and to observe the condition of the mucous membrane of the vagina before labor. If gonorrhea exists or has existed the vagina should be rendered aseptic by the methods now in vogue for that purpose. The same is true of carcinomata or any new growths ulcerative in character, such as chancre, etc. I have seen septic peritonitis caused by infection from a chancre, also from gonorrhea, and have demonstrated positively the relation between the cause and effect by a bacteriological examination and by the history of the patient. As to those cases produced by operative interference during labor and by the attendant, little need be said, as these causes are well known and should be always guarded against.

Infection is often due, as indicated above, to the existence of lacerations and abrasions, through which the organisms find entrance. As a result of this infection we have, as the mildest form, a septic endometritis, the pain being usually localized in the uterus, there being a discharge of foul-smelling pus with the temperature characteristic of suppuration. Such cases are not necessarily fatal, the rule being that the infection remains for a time local, then spreading slowly to contiguous structures, resulting in localized peritonitis, the uterus becoming adherent; or we may have a salpingitis or pyosalpinx, with or without ovarian or broad-ligament abscess.

A more severe infection, either from a larger amount of organisms entering or from more virulent poisoning, may result in a more rapid spreading of the microbes into the surrounding structures, and to rapid pus formation in the tubes or in the broad ligaments, or the pus leaking out of the tubes may produce the most virulent purulent peritonitis. Then, again, the local infection may be very severe and extensive; the pus formation may remain entirely localized to the uterus itself or the uterine body and subjacent periuterine tissue. The organ is either very soft and boggy or may be riddled with small pyemic abscesses. To this condition we might apply the term diffuse purulent metritis and septic parenchymatous metritis.

Another condition which may exist is the formation of septic

thrombi in the sinuses, emboli being carried into the distant organs, resulting in true pyemic processes. When the infection remains local a rapid sapremia may be set up, causing death in a short time, or at any time a pyemia or septicemia may supervene.

The treatment, then, may be considered under several different heads :

First, those cases where the infection is the result, not directly but indirectly, of tears in the soft parts, there being localized suppuration at these points.

Second, those cases where septic endometritis exists.

Third, where pus tubes or sacs in the broad ligaments are found.

Fourth, purulent metritis and parenchymatous metritis.

Fifth, purulent peritonitis.

Sixth, sapremia, septicemia, or pyemia.

1. In the first class of cases it is necessary to thoroughly excise or curette the lacerated surfaces, washing them with an antiseptic solution and packing or draining with aseptic gauze. If there is no great loss of tissue, or if this is not extensive, the granulating surfaces may be approximated by means of sutures and dressed aseptically. Daily irrigation for a few days, with fresh packing, will result in rapid improvement. Any local collections of pus must be evacuated and the cavities drained.

2. *Septic endometritis.* This will probably be one of the most frequent conditions we will be called upon to treat, and upon its intelligent treatment depends much, not only as to the immediate outcome of the case, but as to the severe after-effects which are so apt to follow this trouble. The pathological condition locally is one of an inflamed or intensely congested endometrium, with a large, fresh raw surface at the point of the placental detachment affording ready means of ingress of organisms into the uterus. The endometrium is soft, often detached decidual shreds, partly or in whole decomposed, are found, or there is as a result pus formation. This pus may remain in the uterine cavity or escape slowly through the still patulous os. The pain is localized to the uterus, though this organ itself is not necessarily much enlarged. The treatment is the same as for pus elsewhere, and the rule *ubi pus, evacuo* is of particular importance. Failure to properly and thoroughly remove septic material means little or no improvement and further infection. No internal medication is of avail, and the giving of quinine or

other agents to reduce temperature or combat the poison, without removing the infecting material, is absolutely useless and a loss of valuable time. Do not delude yourself into believing that the condition will pass off in a few days or that you may be mistaken in your diagnosis, but proceed surgically to combat these virulent micrococci. It is as a result of septic endometritis that the very worst forms of puerperal troubles occur; the most severe is that where the disease spreads by the lymphatics to the periuterine tissue and peritoneum, which, by means of treatment, may often be prevented. When we have a chill, high temperature, and pain, coming on shortly, within twenty-four to ninety-six hours, after labor, without symptoms of extra-uterine trouble, the curette, with irrigation and aseptic gauze packing, is by far the best plan of treatment we have. The curette is the most valuable curative agent we possess, and succeeds where only drainage or irrigation and drainage fail completely to hold in abeyance or check the onward progress of the disease. Women who have been irrigated two or three times daily for a week or ten days without improvement have shown an immediate improvement after curettage in my hands. For this purpose it has been my custom to use the sharp curette, which, in the hands of those educated to its use and who are able to recognize normal from abnormal tissue, is absolutely without danger. In the hands of those unaccustomed to its use I would not advise the sharp curette, but one having a somewhat blunted edge. The operation then in itself, we may say, is entirely devoid of danger, unless it be from perforation, and, as I have said, this is very unlikely to occur in skilled hands or when the operation is carefully and properly done. Very seldom is an anesthetic necessary, the cervix being always sufficiently dilated. One point I should lay stress upon—*i.e.*, not to pack the uterus too tightly after curetting, as we do not desire to tampon the uterus, but to use gauze merely for the purpose of drainage. The gauze may be removed after twenty-four to forty-eight hours, and an intrauterine douche given and the vagina loosely packed. This in turn may be removed after two or three more days and daily vaginal douches given for a short while.

3. *Pyosalpinx, pelvic cellulitis and abscess.* The first of these, pyosalpinx, may succeed an infectious process very rapidly, spreading by continuity of structure at times, and this being true in chronic cases, or it may come on very rapidly as a result

of lymphatic infection. I would not include in this category for treatment those cases of pyosalpinx which occur as a sequel to chronic septic endometritis, but confine my remarks to acute cases. The diagnosis may be very difficult, or may be made only under an anesthetic and after a careful examination. It would be important to distinguish whether one or both tubes were affected. Here, also, medicinal treatment is of no curative value, but the administration of tonics, good food, and salines is advisable as preparatory measures to salpingectomy. As to the best method of operating, there can now, in the light of recent clinical work, be no question but the low operation is better. This method of operating is also applicable to perimetritis or broad-ligament abscesses, and is in that instance undoubtedly the best plan of procedure. Another reason for advocating the low operation is that, when operative procedure becomes necessary, we should not only consider the immediate result, but also the condition in which our patient will be left after the operation. Although my experience has been limited, I have found that in the low operation done for pelvic disease patients are able to be out of bed in from six to eight days, there being less nausea and other troublesome symptoms than usually follow operations by the abdominal route. As drainage and rapidity are points to be especially considered, it is preferable to operate with the clamp. The use of ligatures in these operations not only lessens drainage, but there is great danger of infection from the ligature, which is entirely done away with by the use of the clamp.

4. *Purulent metritis and diffuse septic parenchymatous metritis.* This is one of the most serious and dangerous conditions resulting from infection. It may also be prevented by curettage and drainage, but sometimes, even in spite of the utmost care and energetic treatment, it will occur. The treatment, to be of any avail, must be carried out at once and allows of no delay, notwithstanding it is one of the most dangerous in pelvic work. The only procedure available is hysterectomy, and, as in pyosalpinx and pelvic cellulitis, operation from below is preferable. Fortunately few cases occur, and those reported as operated upon are indeed rare. The operation is undoubtedly at times a life-saver. Of course, as before mentioned, the dangers are very great and the outcome, even in spite of operative interference, often fatal. I believe, as previously intimated, that

in these last two classes of cases operation by the vaginal route is undoubtedly the better plan. By this method we have a ready channel for drainage, the after-results are by far better, and, above all, there is no danger of infection of the general peritoneal cavity by dragging diseased structures through it, as is necessary by the suprapubic method. Where there is merely a pus sac it is also better to operate from below. Where pus sacs, however, are very high, or where there is any evidence of disease of the peritoneum more general in character, the high operation or abdominal route may be preferable. This is especially true where we desire to flood the peritoneal cavity. It would be well even after the abdominal operation to drain through the vagina at the same time. I desire to be put upon record as advocating hysterectomy for the puerperal infected uterus where, after the treatment previously indicated, no improvement has followed after twenty-four to forty-eight hours, and where there is no improvement in the severe symptoms present.

5. *Circumscribed or diffuse purulent peritonitis* may come on either within a short time after infection, or may not exist until later when, the tubes being primarily filled with pus, there is leakage by rupture or by seepage through the not firmly united fimbriae. Unless the collection of pus is circumscribed (and by this I mean contained in the pelvic or inferior portion of the peritoneal sac) the outcome is necessarily fatal. The pus in diffuse peritonitis is so scattered throughout the cavity that it is impossible to evacuate it perfectly, and the organisms themselves are so virulent that often even before much pus is formed the patient is *in extremis*. But where the agglutinated intestines confine the pus to the lower part of the cavity much may be done by incision and drainage either above or below. Should the sac extend out of the pelvis, the suprapubic incision with thorough drainage from below would probably be the better, for the reason that irrigation may be done with much less danger of tearing up intestinal adhesions. This form of peritonitis may go on to recovery in a short time or it may persist for years. If diffuse and the result of lymphatic infection, nothing can be done by celiotomy, as the uterine and pelvic lymphatics, the seat and origin of the trouble, are not affected by the operation. Before peritonitis develops treatment by the curette may be of some avail. All cases so far operated upon after spread of the infection have died. After septicemia has

set in nothing is hoped for by any sort of interference, and even before this a radical operation, as hysterectomy, offers little if the peritonitis has become a marked feature. Only then in local peritonitis with local lesions is operation to be done, or early in peritonitis without demonstration of the general spread of the infection, if there is no marked improvement after less radical treatment.

"At the present time it is safe to conclude that the prognosis of celiotomy done for general puerperal peritonitis is fatal. In cases of localized peritonitis it is best in those cases in which the inflammatory process has become well localized and in which sepsis is absent, the case having resolved itself into pyosalpinx, abscess of the ovary, or pelvic abscess of puerperal origin. The prognosis is fairly good in cases of circumscribed peritonitis operated upon promptly—*i.e.*, within two or three days. Cases which have gone from bad to worse, and in which the operation is done as a last resort, usually terminate fatally."

6. The treatment for *sapremia*, *pyemia*, and *septicemia* is to be based largely upon the conditions found, bearing in mind always that the outcome of septicemia is necessarily fatal, while in pyemia, should abscesses be few and localized where they can be evacuated, we may hope for better results.

419 WEST CHESTNUT STREET.

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A CASE OF FEMORAL HERNIA OF A CYST OF THE BROAD LIGAMENTS.¹

BY

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Chicago.

APRIL 26th last Mrs. D. consulted me about a swelling in the groin that came suddenly three days before. She is a small, slender woman 31 years old; has been married eleven years; has had four children, the youngest is 2 years old. Forceps were used at first delivery; perineum lacerated and sewed up after the second. Has had no trouble during any of her pregnancies and no miscarriages. Children healthy and living. Menstruation regular since last baby two years ago. Has had no gynecological troubles, no hernia. Has been thoroughly healthy in every way until present time.

Three days before coming to see me she was washing, and while lifting an unusually heavy boiler containing the wash she felt something give way in her right groin with a sharp though not intense pain. She continued her work, and on undressing in the evening she saw the lump in her groin. Three days later the swelling had increased somewhat since its first appearance, but gave her very little annoyance.

Examination.—She is a small, thin woman of wiry, muscular development, has very little subcutaneous fat, but is of healthy color and appearance. In the right groin is a movable, fluctuating tumor, about five inches long and about two and a half inches wide, lying with its long axis parallel and just above Poupart's ligament. It is fairly movable under the skin, and is attached below apparently at the femoral opening. The tumor is not tender to manipulation, distinctly fluctuates, cannot be diminished by pressure, and is not increased nor is there any impulse on coughing or straining. The skin above it is natural.

I recognized it as an irreducible femoral hernia, but was at a loss as to its contents. Absence of pain, colic, and of inter-

¹ Read before the Chicago Gynecological Society June 21st, 1895.

ference with the movements of the bowel excluded gut or omentum. Vaginal examination was negative, except that the right broad ligament seemed a little fuller than the left, but so little fuller that I attached no importance to it. The uterus and both ovaries were in position and normal.

In order to watch the ease awhile I asked her to call again in two weeks. Two weeks later she came. Everything was just the same. She thought the tumor was just a little larger. She had continued to have no inconvenience of any kind, except that when she bent over in her work the tumor was in the way. I told her that whatever the thing was, the operation would be the same. She consented to an operation to have the hernia removed.

I operated May 5th. The usual incision was made. The sac was very thin, and the hernia was easily separated from the surrounding tissues until the pedicle was reached. The pedicle or neck of the sac was of denser tissue; its diameter was about that of a lady's little finger, and it entered the femoral canal, which was but little wider than normal. I incised the thin sac, which was very evidently not peritonem, and about two-thirds of a pint of thin, light yellow fluid escaped. I endeavored to pass my finger through the neck of the sac for exploration, but it was altogether too narrow, and, not deeming it good for the patient to forcibly dilate, I explored with a long thick probe, which to my surprise passed into a cavity to its full length. I thought for a moment that possibly I was in the abdominal cavity, but a moment's reflection showed me that its direction was not that of entering that cavity, but downward into the pelvis; besides, in manipulating the probe its movements were limited abdomenward. Holding the probe with my left hand, I inserted the index finger into the vagina, and then easily felt the probe in the right broad ligament. The cavity in which the probe was was a rather large one, judging by the freedom with which the probe could be moved about. It was just to the right of the uterus and close to that organ and to the vagina. There seemed to be hardly any tissue between the wall of the cavity and the lower part of the uterus. The tip of the probe could be felt close to the lateral wall of the vagina along its upper inch or inch and a half. The cavity was apparently empty. But little fluid could be pressed out through the external opening by pressing on the cavity biannually.

I tied the sac as high up in the femoral canal as I could, cut

off the external portion, and finished the operation exactly as one for a femoral hernia. The wound healed by first intention and the woman was out of bed and without a bandage in two weeks. She has had no symptoms since and does her regular household work. Yesterday, about seven weeks after the operation, I examined her. The scar is normal; there is no indication of a recurrence. On vaginal examination I could detect nothing except that the right broad ligament is a little fuller than the left. The uterus and both ovaries are in place and apparently normal.

In the literature to which I have access I find no mention of a similar occurrence. This cyst of the broad ligament was either a parovarian cyst or one of the so-called duct of Gärtner. I am inclined to believe that it is one of the latter, on account of its closeness to the uterus and vagina, especially the latter, corresponding to the position of the remains of Gärtner's duct. This case cannot accurately be called a femoral hernia of one of these cysts, for the femoral ring was not enlarged; it was rather a hernial growth of the cyst. The cyst wall must have grown or been forced into and partly through the femoral canal, and then the unusual exertion of the patient on the day of the occurrence must have forced the cystic fluid into this pouch, which, under the hydraulic pressure, stretched and thinned out so as to contain nearly all of the fluid of the internal cyst. The result was an hour-glass formation. The external portion was forced to rise upward, as nearly all femoral hernias do. In this way the narrow neck was bent on itself and the contents of the hernia became irreducible. As to prognosis, if it is a parovarian cyst it will probably result in a cure, as so many of these are cured merely by tapping; if it is a cyst of Gärtner's duct it will very likely refill.

CENTRAL MUSIC HALL.

ANALYSIS OF SIX THOUSAND SEVEN HUNDRED AND SEVENTY-SEVEN CASES OF MIDWIFERY

ATTENDED BY JAMES ROSS, M.D., TORONTO, BETWEEN THE YEARS 1852 AND 1892.

WITH NOTES BY

J. F. W. ROSS, M.D.,

Toronto.

THE analysis of the following cases has been made with the greatest care. It was the custom of Dr. James Ross, my father, to keep an accurate record of all cases of confinement, attended by himself, in books prepared for the purpose. They were ruled and arranged as follows: number, name, residence, date, age of mother, single or married, number of labors, duration of labor, term, presentation, number of children at a birth, sex, result to mother, to child, folio detail book, remarks. This book was kept by himself, and each case was recorded on the day of the delivery. It is therefore a complete, accurate, and reliable record.

A partial classification of the early cases was made by my friend the late R. Zimmerman, M.D., and published in October, 1877, in the *Canadian Journal of Medical Science*.

Age of the mother.—The age of the mother was noted in 5,855 cases:

In 1 it was 15½ years.				In 259 it was 27 years.				In 58 it was 39 years.			
"	6	"	16	"	485	"	28	"	169	"	40
"	10	"	17	"	149	"	29	"	33	"	41
"	55	"	18	"	651	"	30	"	49	"	42
"	55	"	19	"	116	"	31	"	19	"	43
"	313	"	20	"	323	"	32	"	18	"	44
"	232	"	21	"	155	"	33	"	17	"	45
"	375	"	22	"	119	"	34	"	10	"	46
"	262	"	23	"	214	"	35	"	2	"	47
"	408	"	24	"	241	"	36	"	2	"	48
"	261	"	25	"	128	"	37	"	2	"	49
"	470	"	26	"	183	"	38	"	1	"	50

Sex of child.—In 6,725 cases in which the sex of the child was noted, there were: males, 3,552; females, 3,173.

Mortality of mothers.—The number of mothers lost was 39, or 1 in 173⅓. Of these 7 died from puerperal fever, death occurring on the fifth, sixth, sixth, seventh, seventh, eighth, and twenty-eighth days; 5 died from acute peritonitis on the fifth,

sixth, sixth, eighth, and tenth days; 2 died from convulsions in thirteen and one-half hours, and three days; 3 died from puerperal phlebitis on the seventh and fifteenth days; 1 died from puerperal fever and pleuro-pneumonia on the eighth day; 1 died from puerperal mania on the fifteenth day; 1 died from shock in thirty-six hours, rupture of uterus; 1 died from placenta previa, immediate death; 1 died from suffocation and collapse from a pre-existing pleuro-pneumonia, eight hours after labor; 1 had had gastritis and pleuro-pneumonia for several weeks, labor was induced near full term, death occurred seven days after; 1 died from pernicious anemia on the eleventh day; 1 died from loss of blood on the second day, after cutting her throat with a razor; 1 died from scarlatina maligna and rheumatism on the twelfth day; 2 died from scarlatina maligna on the fifteenth and twentieth days; 3 died from typhoid fever on the fifth, fourteenth, and twenty-fourth days; 1 died from phthisis on the eleventh day; 1 died from phthisis and heart disease accompanied by flooding on the thirteenth day; 1 died from dysentery, acquired some time previous to labor, on the tenth day; 1 died from exhaustion in thirty-six hours; 1 died from post-partum hemorrhage in two hours; 1 died from exhaustion in less than an hour, version when *in articulo mortis*; 1 died from accidental hemorrhage and exhaustion in two and one-half hours; 1 died from cause not noted.

Number.	Died after labor.	Remarks.
50	In thirty-six hours.....	Under the care of midwife for three days. Craniotomy and subsequent version before delivery could be effected. Patient in exhausted condition before anything was attempted.
590	Two hours after.....	Post-partum and accidental hemorrhage.
919	In less than an hour ...	Version <i>in articulo mortis</i> , but too late.
1130	On seventh day.....	From gastritis and pleuro-pneumonia. Suffered from gastritis eight weeks previous, and pleuro-pneumonia one year before, from which she had never fully recovered. Labor induced to palliate suffering and prolong life.
1221	On tenth day.....	From dysentery.
1342	Eight hours after.....	From suffocation. Had been suffering from pleuro-pneumonia for several weeks, and was on verge of collapse when labor commenced.
1633	On twelfth day.....	From scarlatina maligna and rheumatism.
1716	On sixth day.....	Took puerperal peritonitis on second day after delivery, and died on sixth day.
2366	On twenty-eighth day..	From puerperal fever.

Number.	Died after labor.	Remarks.
2383	On fifteenth day.....	From phlebitis arising from the foul condition of house and bedclothes.
3010	On fifth day.....	From puerperal peritonitis.
3011	On twelfth day.....	Cause not noted.
3082	On twelfth day.....	Patient had long been affected in chest; also both heart and lungs diseased. Post-partum hemorrhage.
3252	On fifth day.....	From typhoid fever and diarrhea.
3653	Immediately.....	From placenta previa and loss of blood. Version, and delivered in five minutes, but too late.
3886	In fifteen days.....	From scarlatina.
4064	In two weeks.....	From typhoid fever.
4107	On fifth day.....	Attended December 7th. Mother died fifth day from puerperal fever.
....	.....	Case attended December 8th. Fourth day puerperal fever set in; recovery.
....	.....	Case attended December 9th. Recovered without a bad symptom.
4110	On sixth day.....	Attended December 11th. Died on sixth day from puerperal fever.
4111	On twenty-fourth day.	From typhoid fever.
4118	On eighth day....	In the interval 6 cases were attended without any evidence of puerperal fever. This case attended December 21st. Mother died on the eighth day from puerperal fever and pleuro-pneumonia. Then 9 cases were attended without any bad symptoms.
4128	On twentieth day..	This case attended December 29th. Scarlatina (?) developed on the eighth day, and patient died on the twentieth day after delivery. Then 32 cases were attended without any bad symptoms.
4160	On seventh day....	Case attended January 31st, which developed puerperal fever, commencing on the second day, and she died on the seventh day. <i>This case was confined on a bed which was used for one of the cases that died in December.</i> Twenty-eight cases were then attended without any appearance of sepsis.
4188	On fifteenth day...	On March 13th case attended, and pleuro-pneumonia developed on fourth day, and she died eleven days later from exhaustion.
4399	On eleventh day.....	From phthisis.
4463	On tenth day.....	Complained of great pain previous to delivery. No forceps used, and no difficulty with placenta. Peritonitis.
4939	Thirteen and one-half hours.	From rupture of a cerebral blood vessel.
5017	Thirty-six hours after.	From shock. A great deal of force required to deliver shoulders. Rupture of uterus found post mortem.
5078	Three days.....	From uremic convulsions.
5264	On second day.....	From septicemia.

Number.	Died after labor.	Remarks.
5429	On sixth day	This case was attended March 1st. Died on sixth day from puerperal fever. Placenta adherent and removed by hand.
5467	Two and one-half hours	Case attended April 22d. Died in two and one-half hours from exhaustion following accidental hemorrhage.
5813	2d puerperal fever epidemic. { On twenty-third day. On eighth day On eighth day . . . On seventh day . . .	Case attended December 7th, and died on the 30th from septicemia.
5818		Then 4 cases were attended without any difficulty. Case attended December 16th. Died from acute peritonitis.
5875		Then 57 cases were attended without any trouble. Attended March 29th, and died on eighth day from puerperal fever. This case is a sister-in-law of the last case that died.
5898		Thirteen cases were then attended without any difficulty arising. Attended April 2 nd . Died from puerperal fever.
6538	On second day	In none of these four cases was the forceps used, and no difficulty was noted with regard to the extraction of the placenta.
6624	On sixth day	Two days after delivery cut her throat and died from loss of blood.
6722	On eleventh day	From acute peritonitis. Very difficult labor ; impacted head ; forceps.
		From pernicious anemia.

Case No. 5017. Rupture of the uterus.—Patient in her eighth labor, possessing a good deal of adipose tissue. Took ill on January 2d, 1879 ; seen at 3 A.M. January 3d, sitting up in bed, but appeared pale. Pains not very active. Os found dilated to the size of a penny. Presentation : occiput left anterior. Pelvis one of medium capacity, but child's head large. At 6 A.M. the head had descended and was pressing on the perineum, but the patient's strength was failing. Ergot was given and the forceps was used. Just before the forceps was applied the patient said she was dying and became pale and almost pulseless. Head delivered, but shoulders would not come until powerful traction was used—so powerful as to destroy the child. Half an hour elapsed between the birth of the head and the birth of the shoulders ; shoulders very large. Placenta then followed by pressure over the fundus ; uterus contracted well. Fingers passed into the vagina, but no rent could be discovered. Patient rallied slightly, but soon began to complain of severe

pains over the abdomen. Pulse became very quick and feeble; countenance continued pale and the surface of the body cold. About two hours after delivery she vomited, and this vomiting became persistent and continued. The discharge from the vagina was never excessive. She died thirty-six hours after delivery.

At the post-mortem examination liquor amnii and blood were found in the peritoneal cavity, together with some vernix caseosa. A large rent was found which extended from the right side of the neck of the uterus obliquely upward across the posterior wall toward the left cornu and almost as high as the left Fallopian tube. This involved the whole thickness of the uterine wall. The os and cervix remained intact.

Mortality of children.—Four hundred and eleven children were lost, or 1 in $16\frac{2}{4}\frac{0}{11}$. Of these there were: full term, 258; not full term, 153, the latter ranging from the fifth to the eighth month. In 121 death had occurred from twenty-four hours to two or three months before labor; in 4 death was due to craniotomy, in 3 to morbus ceruleus, in 4 to hydrocephalus, in 22 to deformity (acephalus, spina bifida, etc.), in 15 to placenta previa, in 10 to prolapsus funis; in 55 cases where the child was born dead the forceps was used; in 19 cases version was performed; in 8 cases the pelvis was contracted, in 18 the shoulder presented, in 24 the foot presented, in 45 the breech presented; in 42 there was accidental hemorrhage; in 21 the cause of death was not noted.

Presentations.—In 5,409 cases the head presented, in 148 the breech, in 58 the feet, in 5 the breech and foot, in 34 the arm or shoulder, in 25 the face, in 7 the brow; in 1,091 the presentation was not noted.

Position in head presentations (when noted).—Four thousand and twenty-seven were occiput left anterior, 550 were occiput right anterior; 400 were occiput right posterior, 213 were occiput left posterior.

Two hundred and fifty-nine head presentations with occiput posterior were converted by rotation with the finger into occiput anterior. Of these, 134 were performed during the first 4,704 cases, and 125 were performed during the last 2,073 cases, a difference of only 9 cases, showing the increased frequency with which this manipulation was performed during the years of riper experience.

Breech presentations.—One hundred and fifty-eight, or 1 in $42\frac{1}{2}\frac{1}{1}$. Of these, 102 children were saved and 46 lost, 1 in

147 $\frac{15}{46}$. Ten were twin cases, 1 was a triplet case, 9 were dead some time, 7 died from accidental hemorrhage; in 2 the pelvis was contracted, 3 were deformed, 2 died shortly after birth.

Foot presentations.—Fifty-eight, or 1 in 116 $\frac{49}{58}$. Of these, 33 children were saved and 25 lost. One died from accidental hemorrhage, 3 from placenta previa, 4 from deformity; in 1 the pelvis was deformed; 6 were dead some days before birth.

Arm or shoulder presentations.—Thirty-five, or 1 in 193 $\frac{2}{35}$. Of these, 14 children were saved, 21 lost. In 1 craniotomy was performed; in 2 there was placenta previa; 3 cases were dead before labor (one died one hour after birth, and one case was spontaneously converted into a breech).

Face presentations.—Twenty-five. Of these, 19 children were saved and 6 lost. In 1 case version was performed; in 1 case forceps was used; 7 cases were converted by hand into occiput right or left anterior.

Brow presentations.—Seven. Of these, 6 children were saved and 1 lost. Two cases were converted into occipital and 1 into a face presentation.

Unclassified presentations.—In 1 the back and side presented, in 2 the lumbar region, in 1 the thoracic region, in 2 the feet and head, in 1 the forehead and foot, in 2 the foot and arm, in 2 the head, arm, and hand, in 1 the head, hand, and funis, in 1 the right arm and funis, in 1 the head and arm, in 1 the leg, in 1 the foot and leg, in 5 the foot and breech, in 2 the foot, head, and breech, in 1 the knee.

Twin cases.—One hundred and six, or 1 in 63 $\frac{99}{106}$. Children saved, 187; lost, 25, 6 of the latter being premature, and 4 dying before labor and 1 from placental clot. In 43 cases both children were males, in 31 both were females, in 32 one child was male and the other female.

Presentation in twin cases.—In 48 both were head, in 13 one was head and the other foot, in 2 both were breech, in 20 one was breech and the other head, in 1 one was head and the other brow, in 3 one was head and the other shoulder, in 2 one was feet and the other arm, in 1 one was head and the other arm and face, in 1 one was head and the other was forehead and foot, in 1 both were feet, in 2 one was foot and the other breech, in 1 one was hand and the other foot and leg, in 11 the presentation was not noted; in 2 cases the placenta followed each child.

Triplet cases.—One, or 1 in 6,777 cases. Of these, 2 children were saved and 1 lost, the latter being premature and dead some weeks. All females and breech presentations.

Version.—This was performed in 45 cases. In 19 the child was saved and in 26 lost.

Accidental hemorrhage.—This occurred in 50 cases. In 8 the child was saved, in 42 the child was lost.

Placenta previa.—This occurred 18 times. Mothers saved, 17; lost, 1. Children saved, 3; lost, 15.

Post-partum hemorrhage.—This occurred in 33 cases. In 31 the mother was saved and in 2 lost.

Puerperal convulsions.—This occurred in 11 cases. In 9 the mother was saved and in 2 lost. In 9 the child was saved and in 2 lost.

Prolapsus funis.—This occurred in 22 cases. In 12 the child was saved and in 10 lost.

Forceps cases.—Four hundred and ninety-one, or 1 in $13\frac{394}{451}$. Of these cases 173 occurred in the first 4,704 and 318 occurred among the last 2,703, showing the great increase in the frequency with which forceps was used during the latter years of practice. The forceps was used with favorable results in all. There were 282 multiparous labors, in which 244 children were saved and 38 lost, or 1 in $9\frac{8}{15}$. There were 207 primiparous labors, in which 179 children were saved and 28 lost, or 1 in $7\frac{1}{2}$. The infant mortality in the early cases of forceps delivery was higher than in the later cases. There were 40 children lost out of 173 cases in the first part of the series, and in the latter part of the series there were 26 lost out of 318. This would tend to show the forceps was used much earlier in the labor in the latter cases than in the former, and that this use of forceps is a great element in diminishing the infant mortality. In 5 cases the child had been dead some days; in 12 the pelvis was contracted; in 3 the children were hydrocephalic; in 2 craniotomy was performed; in 3 the funis prolapsed; in 4 death occurred by constriction of the neck by the cord.

Ruptured perineum.—This occurred 27 times: 26 times partial and in one case it was complete. In the case of complete rupture of the perineum the child was born before the doctor's arrival and he did not see the patient subsequently. In several cases two or three stitches were inserted at the time, and the record does not show that any subsequent operative treatment was required.

Chloroform.—This was first given in No. 1469, December 16th, 1862. Cases chloroform alone given, 458; cases chloroform not given, 4,454. Cases ergot alone given, 781; cases ergot not given, 4,725. Cases in which ergot and chloroform were given together, 397. Number of forceps cases in which chloroform was given, 254; number of forceps cases in which chloroform was not given, 237.

Retained placenta.—Forty-eight cases. In 38 cases by adhesions; in 2 hour-glass contraction; in 8 cause of retention not given.

Duration of labor.—Shortest labor in which chloroform was given, 3 hours; longest labor in which chloroform was given, 6 days; shortest labor in which chloroform was not given, $1\frac{1}{2}$ hours; longest labor in which chloroform was not given, 186 hours; average length of labor in which chloroform was given, $11\frac{10}{17}\frac{6}{1}$ hours; average length of labor in which chloroform was not given, $11\frac{2}{10}\frac{13}{00}\frac{3}{0}$ hours.

A CASE OF RUPTURED TUBAL PREGNANCY.

ATTEMPTED CRIMINAL ABORTION; SEPTIC INFECTION; CELIOTOMY AND CURETTAGE; RECOVERY.

BY

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Mrs. H., white, 25 years old, was seen in consultation with Dr. Wade H. Atkinson, of this city, the evening of March 21st, 1895, and the following history was procured from him and the patient: Her usual weight was one hundred and five pounds, and her health fair up to a month ago. She had always been regular in menstruation, except a delay of one week two years ago; each period lasted about four days and was quite painful.

Early in January, 1895, her last period occurred and the usual symptoms of pregnancy followed. On the 9th of March following, being satisfied of being pregnant, she secured the services of an abortionist, who introduced a soft catheter into the uterus. She was then in a New England city, and next day started for Washington. She drove about this city and in other

ways passed the time pleasantly. A slight show of blood appeared and she removed the catheter forty-eight hours after its insertion. Considerable pain accompanied the flow. On March 14th Dr. Atkinson was sent for and found her in severe pain, constipated, and losing some blood from uterus. She reported a day or two later having passed something from the vagina that had the appearance of a little bladder, which from her description the doctor concluded was a fetus and its membranes. She had one chill, followed by fever, prostration, and an offensive vaginal discharge. The flow of blood, though slight, continued. Dr. Atkinson used stimulants, cathartics, and antiseptic intra-uterine as well as vaginal douches. The pain became so bad that anodynes were resorted to; her temperature reached 103° ; night sweats occurred and profuse diarrhea.

When I saw her with Dr. Atkinson she was in bed, apparently calm, but very pale and nauseated. Later she showed much alarm concerning her condition. Her pulse was 140 and very weak, her temperature 102.6° , and she looked much like a sick child of 15. Dr. Atkinson had concluded that the uterus should be completely emptied, and for that purpose I was called.

An examination revealed a slightly enlarged uterus to the front and right, and further to the right was felt a slight enlargement like a small pus tube. To the left the pelvis was filled with what seemed to be a pelvic abscess which extended up into the abdomen. She was very tender and an examination could not be satisfactorily made. A nasty, foul-smelling discharge from the uterus was noted. My diagnosis was septic infection of the uterus and its appendages resulting from a criminal abortion, and early surgical eradication was advised. I advised exactly what was done, namely, curettage and gauze drainage and removal of the appendages through the abdomen. Her husband had to be telegraphed and her removal to Columbia Hospital was delayed until March 22d.

Next day the pulse was rapid and flickering and her temperature still high. The uterus was curetted, considerable decidua tissue being removed and careful irrigation employed, followed by the insertion of a long, narrow strip of gauze. The abdomen was then opened, and the mass to the left found extending as high as the umbilicus and consisting of clotted and fluid blood that began to escape rapidly from the abdominal cavity when

the incision was made. I immediately diagnosed ruptured tubal pregnancy, and pushed my fingers down through the accumulation of blood and grasped the still bleeding tube. Applying forceps to ovarian and uterine arteries, the tube was removed without much effort and without any cutting or the placing of a ligature. It was about four inches long and three inches in diameter, and presented an opening about one inch in diameter. The blood was scooped out and the vessels tied. The right tube, nearly two inches in diameter and containing pus, was released from fresh adhesions and removed. The ovaries, apparently normal, but embedded in the adhesions, were removed; the left contained a true corpus luteum, and the right three false. The abdominal and pelvic cavities were flushed with normal salt solution and a glass drainage tube inserted. A very few sutures were put in to close the abdominal incision, as further delay was considered extremely hazardous.

The operation was done under ether and required fifty-five minutes. During that time strychnia was freely used hypodermatically. The left tube was found to contain fetal membranes but not a fetus. The patient was placed in bed, surrounded by hot blankets, hot-water bags, etc., the feet and legs bandaged snugly, the foot of the bed raised eighteen inches higher than its head, and a stimulating enema given. The hypodermoclysis of normal salt solution was begun at once, and with slight intermissions continued until one hundred and four ounces had been thrown into her circulation. Its excellent effects I have often noticed, but perhaps never so markedly as in this case. There was no radial pulse during the hour following the operation, and many times the efforts at respiration seemed mere dying gasps, each one thought to be the last. I had very little hope at this time of her recovery, and sent to a neighboring room for her sister to hasten as death was probably at hand. In giving this case as an example of the effects of salt transfusion, I have not overlooked the strong tendency to reaction that is usually a feature of ruptured ectopic pregnancy. Notwithstanding this I attribute the recovery of the patient to the use of the normal salt solution. Being a very small woman and having lost such a relatively large quantity of blood, her veins were very small. Consequently attempts to puncture them for transfusion were abandoned, and the forcible injection of the salt solution into the cellular tissue was employed. The

effect was gradual but certain and constant. Every hour showed improvement until complete recovery occurred.

The glass drainage tube was used thirty-six hours and iodoform gauze substituted for the same length of time. Strychnia, nitroglycerin, digitalin, etc., contributed to her rapid recovery. About two weeks after the operation a suspicious cough began and was quite persistent. Bacteriological examination of the sputa showed no tubercle bacilli, and she slowly recovered from it.

Examination of all the material removed from the patient's abdomen failed to reveal the fetus. The ruptured tube with its contained fetal membranes leaves no doubt that pregnancy did exist in that Fallopian tube.

This case is peculiarly interesting from its obscurity previous to operation. It is noticeable that the history of ectopic pregnancy, usually so definite in such cases, is entirely absent. Absolutely no symptom pointed to abnormal rather than normal pregnancy. The evidence of pregnancy of two months' duration, the attempt to dislodge it from the uterus by an abortionist, and the subsequent history of passing a small bladder, of the discharge having a very foul odor, and a chill followed by fever and feeble, rapid pulse, pointed to puerperal septic infection following criminal abortion. Then the presence of fluctuating masses to both the right and left (not one side only) of the uterus seemed to render the diagnosis almost positive. Under other conditions I should have left the right appendage, but as septic infection was present I deemed its removal imperative. The uterine wall being septic and the right Fallopian tube in the same condition, I could not well hope for a favorable result if the tube and uterine mucosa were not removed. Of course I realized the desperate condition of the patient, but saw better prospects of recovery by the course pursued. The bleeding in this case had probably been going on two weeks, rupture probably occurring about the time the catheter was in the uterus. There had been a weak attempt by Nature to form a limiting wall about the extravasated blood. Early in June the patient called at my office and was apparently well, though fearful of "weak" lungs.

In looking over the literature of this subject I have not found the report of a similar case.

THE TREATMENT OF METRITIS AND ENDOMETRITIS.¹

BY

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(With one illustration.)

INFLAMMATIONS of the uterine mucosa may be divided into *catarrhal*, *septic* or *specific*, and *senile*, according to their causation, and the underlying muscular structure constituting the walls of the organ may or may not be involved, this depending upon the character and duration of the inflammatory process.

Catarrhal endometritis, the possibility of which is disputed by some writers, is, I believe, frequent and occurs independently of septic influence. This must be true, since it is often discovered in virgins when there has been no possibility of infection. It exists either as a subacute or chronic inflammation, the latter state presenting different characteristics depending upon the duration of the inflammatory action. The muscular walls are not always involved, but two forms of metritis are encountered clinically as a result of prolonged and extensive catarrhal inflammation of the endometrium.

A catarrhal salpingitis may occur coincidently with catarrhal endometritis, being produced by the same causes, and does not necessarily result from extension of the inflammation from the endometrium.

Endometritis due to septic or specific infection, on the other hand, occurs as an acute and chronic inflammation, and the muscular structure of the uterine walls is always involved unless it is arrested early in the onset of the attack. The inflammatory process spreads rapidly to the tubes and even to the pelvic peritoneum, producing serious complications and troublesome sequelæ.

Senile endometritis differs materially from the other forms of inflammation in this locality, in that it is primarily a chronic inflammation resulting from alteration in the circulation and nutrition of the uterus, due to the atrophy of the structures following the natural cessation of function consequent upon the menopause. The secretion from the endometrium, which is

¹ Read before the New York Obstetrical Society May 20th, 1895.

intensely irritating, is retained within the cavity of the uterus on account of obstruction in the canal due to the formation of dense, firm bands resembling cicatricial tissue.

It is the general impression that women who have passed the menopause are exempt from uterine disease, particularly inflammations of the uterus, consequently this condition is frequently overlooked, the symptoms it gives rise to being attributed to other causes. Judging from my own experience, senile endometritis is by no means rare. It gives rise to symptoms which are somewhat characteristic, such as a burning sensation in the lumbar or sacral region, associated with backache, occasionally pain in the occiput or in the top of the head, and impaired general nutrition. The patient will deny the existence of any discharge or other direct evidence of uterine disorder, yet upon examination a profuse and intensely irritating discharge will be found at the upper part of the vagina about the cervix. It is frequently so irritating as to destroy the vaginal epithelium, and the surface in places is dense, firm, and shining like cicatricial bands. Here and there over its surface will be found ecchymosed elevated spots. In some cases this same condition prevails in the cervical canal, producing the obstruction referred to above, and no doubt the interior of the uterus is in a similar condition.

Whatever may be the primary cause of these inflammations of the uterus, they are secondarily maintained and prolonged by defective drainage, permitting the accumulation and retention of secretions which become vitiated and irritating. The chief object of treatment, therefore, must be the establishment and maintenance of free drainage through the canal of the cervix, and absolute cleanliness of the cavity of the uterus. In addition to this all other sources of irritation must be removed and engorgement of the uterine and the pelvic vessels must be relieved.

Subacute catarrhal endometritis is only a hyperemia attended with hypersecretion, and usually the cervical canal is sufficiently patulous to permit drainage of the secretion, which is comparatively thin. Therefore the treatment should be directed toward relieving the condition of hyperemia. For this purpose fine wire faradization is the most satisfactory agent which can be employed. This stimulates vasomotor constriction, quickens the circulation, and unloads the capillary vessels which are engorged and often obstructed. In addition to this all sources of irrita-

tion should be removed, rest should be enjoined, and a relaxed state of the bowels should be preserved.

If the mucous membrane of the cervix becomes infiltrated drainage may be defeated, and then it becomes necessary to free the canal. This is best secured in these cases by passing occasionally a conical dilating electrode connected with the negative pole of the galvanic current, employing only a moderate strength of current (five to ten milampères), for not more than two or three minutes. This should be done only once in two or three days. Besides dilating the canal this produces a certain amount of depletion, since the tendency of the negative pole is to attract liquids from the tissues in the immediate vicinity of the electrode. It is followed by a more or less copious serous or watery discharge, and the secretions become thinner and drain away more rapidly.

In the chronic stage, when there is infiltration and softening of the uterine walls, if the cervical canal is patulous the positive



Goelet's clinical uterine irrigator.

pole of the galvanic current is indicated, or zinc electrolysis may be employed with advantage. But the cavity of the uterus must first be thoroughly irrigated to free the surface of the mucous membrane of all secretion, which if permitted to remain would protect the endometrium from the action intended. This is accomplished by using the clinical irrigator here shown and a hot lysol solution one-half to one per cent. If the canal is not sufficiently patulous to permit the irrigator to enter readily, it is connected with the negative pole of the galvanic current, which will facilitate its introduction. Ten milampères are sufficient for this purpose. In using the positive pole afterward in these cases the strength of the current may be twenty-five to thirty milampères and the duration of the application five minutes. If zinc electrolysis is employed fifteen to twenty milampères continued for five minutes will be sufficient. These applications may be repeated every three or four days.

In this variety faradization may also be employed with advantage, but the current should be made more stimulating than when used in the subacute stage. It stimulates contraction of the ute-

rine walls, which empties the uterus and relieves engorgement and infiltration.

In the stage of induration, if electricity is used, the negative pole should always be employed, because it softens the indurated tissues, produces depletion, and favors drainage. In this stage, however, there is usually a condition of hypertrophy of the endometrium which can be more readily overcome by curettage. The stimulation exerted by the subsequent gauze packing is particularly serviceable in these cases, because it establishes thorough depletion and drainage and softens the indurated structure.

The technique of the operation and the details of the after-treatment are important.

The degree of dilatation required is not as great as is usually considered necessary. Moderate dilatation under anesthesia, gradually accomplished by means of the steel dilator, sufficient for the easy introduction of the curette, is all that is necessary. The gauze packing, if carefully done, will effect still further relaxation.

After sufficient dilatation has been accomplished the double-current irrigator should be introduced and the cavity thoroughly cleansed with either a solution of bichloride (1:4000) or, what I often prefer, a one per cent solution of lysol (hot). The cavity is then curetted and again irrigated with the same solution. Care must be taken to remove the hypertrophied membrane from the vicinity of the internal os and both cornua. The latter is particularly important if there is an associated salpingitis, since the hypertrophied elevations about the orifices of the tubes will obstruct drainage. For this purpose a small-size curette should be used after the cavity has been gone over with a larger instrument. A sharp curette will often be required for removing the tissue at the internal os. The cervix is now seized with a double tenaculum and a strip of twenty per cent iodoform gauze, the absolute sterility of which has been previously assured, is introduced by means of a long applicator forceps and carried well up into both cornua; the cavity is filled, and the cervical canal also, the free end protruding into the vagina. I do not find it necessary to use the cervical shield for inserting the gauze. By avoiding it less dilatation is required, less injury is inflicted, and the operation is completed more rapidly. The gauze is cut into strips three-fourths to one inch wide and one yard long. The vagina is also filled loosely with wider strips

of the same gauze, and an aseptic pad is placed against the vulva.

The patient is confined to bed while the gauze remains in the uterus. Usually a week is sufficient for this part of the treatment. I deem it necessary to remove the gauze every twenty-four hours instead of allowing it to remain undisturbed for several days, for it ceases to act as a drain when the gauze in the vagina becomes saturated, and the secretion will accumulate in the uterus above it and provoke irritation or back up into the tubes. Every time it is removed the cavity should be irrigated with the hot lysol solution before the fresh gauze is reapplied. The importance of these precautions is well illustrated by the quantity of shreds and mucus removed in this way.

The curettage and subsequent gauze packing is by no means the only important part of the treatment of these cases. In fact it should be regarded only as a preliminary step, for, instead of leaving the case to itself afterward, the patient should be required to come to the office at least twice a week for thorough irrigation of the cavity and other treatment which may be necessary. This should be continued until it is absolutely certain that the endometrium is in a healthy condition, as shown by the absence of shreds and mucus in the washing, and relief of the symptoms which follow their retention in the uterine cavity.

The pain, bearing down, backache, and sensitive condition of the uterus, caused by retention of secretion and débris in these cases, is immediately relieved by washing out the uterus. It has been my experience that when this after-treatment is neglected it often becomes necessary to repeat the operation, whereas in those cases where it has been faithfully carried out a second operation has not been required. When we recall how intolerant the endometrium is to irritation we can readily see how shreds of mucus or small clots may provoke a recurrence of the inflammation.

I find it unnecessary to use iodine or carbolic acid in these cases. When an astringent is required Thiersch's solution (boracic and salicylic acids) can be used through the irrigator, or zinc electrolysis may be employed.

Some precautions are necessary in using the clinical irrigator at the office, in the after-treatment of these cases, to avoid provoking irritation. The instrument should be inserted with great care, and if it does not pass the internal os readily it should be

connected with the negative pole of the galvanic current to facilitate its introduction. I generally leave the current turned on throughout the irrigation, believing that some good is accomplished by the stimulation exerted upon the endometrium through the medium of the solution, which acts as an electrode. Before the irrigator is removed the inflow of the solution must be arrested and the surplus solution should be permitted to drain out, so as to leave the cavity empty.

In acute septic or specific endometritis the canal of the cervix should be carefully dilated and the cavity thoroughly irrigated with a solution of bichloride (1:3000), after which a strip of iodoform gauze should be carried up to the fundus and allowed to project through the canal into the vagina to facilitate drainage. Iodoform gauze is also packed loosely in the vagina. This should be removed every twenty-four hours, the cavity irrigated with a half per cent solution of lysol or Thiersch's solution, and the gauze replaced.

In specific endometritis irrigation with a ten grain to the ounce solution of nitrate of silver, repeated if required after forty-eight hours, and subsequent irrigation with the lysol or Thiersch's solution, gives the best results.

When endometritis of septic or specific origin has become chronic it is to be dealt with in the same manner as chronic catarrhal endometritis, except that in the stage of infiltration and softening of the uterus the curette, followed by gauze packing, should be used instead of electricity, because the glandular and submucous structures have been attacked by the disease and this method of treatment is more promptly effective.

In senile endometritis it is both unnecessary and unwise to use the steel dilator and curette. The cicatricial bands are so dense and unyielding that any attempt at forcible dilatation will almost surely produce laceration of the soft intervening tissues, and since the mucous membrane is already destroyed curettage can accomplish nothing. Occasionally, however, in the canal of the cervix there will be found projecting elevations or folds of mucous membrane which are intensely hyperemic and bleed freely when touched, resembling small polypi. These should be removed with the sharp curette.

Unquestionably this form of endometritis is maintained by defective drainage, and can be overcome only by freeing the canal of the cervix so that the vitiated and irritating secretion

may escape from the uterus, but this can be accomplished without submitting the patient to an operation and without anesthesia. The method of treatment which I have found most satisfactory is dilatation with the negative pole of the galvanic current. A conical electrode is introduced at first every third day and from fifteen to twenty-five milampères employed for five minutes each time. The cavity may be irrigated at the same time, but this is not always necessary. Then the vagina is dusted thoroughly with boracic acid or a loose tampon of iodoform gauze is inserted. This is removed in twenty-four hours and the patient is directed to use a vaginal douche of a saturated solution of boracic acid twice a day; this is done for the purpose of protecting the vaginal surface from the irritating discharge from the uterus. After two weeks the application of the dilating electrode may be made twice a week for a month, then once a week for another month. In most cases this is sufficient time for the active treatment, but the patient is directed to return at longer intervals, say once or twice a month for several months, so as to avoid a recurrence of the former condition. This method of treatment seems rational, since it establishes perfect drainage, softens the indurated cicatricial tissue in the cervix, and tends to neutralize the acidity of the discharge, as the reaction of the negative pole is alkaline.

This is essentially a diseased condition resulting from degenerative changes which are progressive, hence the liability of recurrence and the necessity of keeping such cases under observation for a considerable period after a cure seems to have been effected.

To recapitulate.—In acute catarrhal endometritis electricity is an effective remedy, faradization and the negative pole of the galvanic current fulfilling the requirements of local treatment.

In the stage of infiltration and softening of the uterine body in chronic catarrhal endometritis and metritis, the positive pole of the galvanic current and zinc electrolysis combined with faradization are effective and satisfactory.

In the stage of induration the negative pole of the galvanic current is indicated if electricity is employed, but dilatation with the steel dilator under anesthesia, curettage of the cavity and gauze packing to secure depletion and drainage, with subsequent irrigation of the cavity until an absolute cure is effected, is more satisfactory.

Acute septic or specific endometritis demands gentle dilatation and thorough irrigation with antiseptic solutions.

In chronic metritis and endometritis resulting from septic or specific infection, curettage, gauze drainage, and subsequently irrigation to complete the cure is the most effective method of treatment.

Senile endometritis can best be overcome by dilatation and drainage brought about by means of the negative pole of the galvanic current, and, when necessary, irrigation of the cavity with a saturated solution of boracic acid or Thiersch's solution, but the patient must be kept under observation to avoid recurrence.

351 WEST 57TH STREET.

THE AFTER-TREATMENT OF FOUR CASES OF SALPINGO- OÖPHORECTOMY BY ELECTRICITY:

A TEXT AND A COMMENTARY.

BY

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DURING the past few years it has been my misfortune to be called upon to treat thirty cases where removal of the uterine appendages of one or both sides had failed to relieve the patient of her sufferings. The word "misfortune" is here used advisedly and after due deliberation, for it is scarcely possible to meet with more aggravating, tantalizing, and unsatisfactory cases than these very ones of post-operative failure. All measures and remedies seem to fail in the majority of instances to give them any lasting ease, and from hospital to hospital, dispensary to dispensary, and physician to physician they go begging for the relief which would gladly be granted but which it is extremely difficult and not infrequently impossible to give. Experience has shown to me, however, that in a certain proportion of these cases relief is obtainable through the agency of electricity locally applied, while a few may be even permanently cured by this agent, although some will go absolutely unbenefited. Where actual secondary changes exist within the pelvis, following the operation—and this is true of a majority of these cases—relief is possible, and, if these changes be not too profound and deep-seated, a cure may be even brought about.

If these morbid conditions have existed before the removal of the offending organs, and hence are old standing, firmly rooted, and such as the knife had failed to reach—as, for instance, extensive changes of the nerves within the pelvis—but little is to be hoped for.

In twelve instances where local lesions were detected which seemed to be dependent upon the preceding operation, electricity was tried, and, as index of what may be accomplished thereby, the following four cases, showing various forms of operative sequelæ, are presented for consideration :

CASE I.—Annie G., æt. 24 years ; married two years, and the mother of one child born in the eighth month some eight months previous to presenting herself, March 28th, 1891. Began to menstruate at the age of 14 years and was always regular and free from pain. Was operated upon a short period after her confinement—she says eight days—both ovaries being removed. Complained at that time of pain in the side. Since the operation there has been no menstruation. At times, but then only to a moderate degree, has had pain in the lower abdomen. She suffers mostly, however, from peculiar nervous symptoms of a particularly persistent and distressing type—viz., chills followed by great warmth, flushings, intense headaches with succeeding paleness—and at such times acts as if insane. Others have noticed her condition and have become frightened at her violence. Besides the foregoing she complained greatly of painful defecation. However, her principal reason for presenting herself was the entire absence of menstruation, hoping for its restoration. Examination showed the uterus in its normal position but somewhat atrophied. Otherwise nothing could be detected, after a most careful investigation, except some tenderness behind the uterus.

Electrical treatment was not begun until September 26th, six months after first coming to me and fully a year after the operation, during which time there was a gradual aggravation of her sufferings, her nervous symptoms, however, continuing almost unchanged ; the painful defecation having somewhat increased ; while standing, walking, and working about had become extremely painful, going upstairs being impossible without carefully steadying her abdominal walls with her hands, although various measures had been tried for her relief. Considering her local symptoms as in great part indicative of post-uterine inflam-

matory trouble, and mainly with the idea of relieving the pains thus caused, the use of galvanism was begun, the plus pole a clay ball within the vagina at the vault and behind the cervix, the dispersing electrode a pad over the abdomen, the sear being protected by a piece of oiled silk with the object of preventing undue pain.

This plan of treatment was persisted in during three months, and from the very first improvement was noted. The strength of current employed varied between forty-five and sixty-five milampères, given for from five to seven minutes. One of the first symptoms to disappear was the painful defecation, and after five applications had been given it was noted that she had absolutely no pain at any time. By the end of November she felt perfectly well and treatment was therefore stopped; did her own work, which formerly she could not do except with much suffering. Examination showed nothing abnormal, firm pressure failing to elicit the slightest pain. All nervous symptoms had vanished, her general condition was excellent, and she had become rosy and robust. Six months later she reported herself as having remained well, but there had been no recurrence of menstruation.

CASE II.—Rachel A., aged 24 years; married four years; never pregnant. Presented herself December 6th, 1887, about one year previous to which time she had been operated upon, a cyst of the broad ligament being enucleated from the right side, while the ovary and tube were removed from the left. Stated that she was only slightly and temporarily benefited by the operation, and now again felt as bad as ever. Complained entirely of pain in the back and over the left side. Was of a phlegmatic disposition and presented no nervous symptoms. Menstruated just as regularly as formerly. No dyspareunia.

On the left side through the abdominal walls a sausage-shaped, somewhat movable mass was felt, painful on pressure, and situated about in the ovarian region. Per vaginam this was shown to be an elongated, very sensitive mass firmly attached to the left side of the uterus and of about the size of two fists.

September 11th, 1890, or three years after being first seen, or four years after the performance of the operation, electrical treatment was begun. During the interval various measures had been tried, but in vain, for her sufferings continued uninterrupted, without a particle of relief. Her general condition had become

bad, emaciation was marked, appetite gone, sleep disturbed, she was unable even to do her housework; in fact, her state had become truly deplorable, rendering life, as she put it, not worth the living. All this time the local condition had also continued unchanged, nothing seeming to produce the slightest impression upon the exudation mass on the left side of the pelvis.

During three months she received in all sixteen applications of galvanism, high powers being used from the very first, the patient proving an unusually good subject. The positive pole was in the beginning introduced into the vagina up to the vault on the left side, later to be replaced by the negative pole when pain in great part had been overcome. The current strength varied between one hundred and twenty and one hundred and sixty milampères, the average being about one hundred and fifty milampères. After the fourth application it was noted that the mass had grown softer and somewhat less in bulk, while pain had almost entirely vanished. From this time on the exudate steadily diminished and by the 2d of December had disappeared, leaving only some thickening in the broad ligament behind. On December 16th it was noted that the patient felt perfectly well, both as regarded her local and general condition. There was absolutely no sign of exudation; uterus perfectly free and movable. Menstruation recurred regularly and was free of pain, something from which she had formerly suffered greatly. Her only trouble was a hernial protrusion through the abdominal incision.

Three months later—that is, in March, 1891—she again returned with the story that she had been working very hard, lifting, etc., and that following this during two weeks there had been a recurrence of the pelvic pain. Examination showed a mass of exudation material on the left side, the size of a fist, exactly under the region of pain and just where it had formerly been. After her last visit felt perfectly well, and presuming upon this began to work very hard, with the result of the return of her old trouble. Electrical treatment was again resorted to, a lower ampérage, however, being given for the reason that the exudation was of recent origin, the average current strength varying between seventy-five and a hundred milampères. Pain rapidly disappeared and by the end of a month all signs of exudation had vanished.

Patient has been seen from time to time and has continued well. Thus in November, 1891, it was noted that she had re-

mained well and free from pain, while examination showed absolutely no sign of anything wrong in the pelvis. Seen as late as June, 1892, she was in perfect health, examination of the pelvis revealing nothing wrong.

CASE III.—H. M., æt. 28 years, married nine years, has had two children, the last five years ago. Came under observation September 22d, 1891. Was operated upon six and a half years before presenting herself—that is, in March, 1885—the left ovary and tube being removed. Felt better for some time after the operation, but has recently become as bad as ever. Operation, she says, was for the removal of a “tumor and something else.” Menstruates regularly for three days at a time, the amount lost being small. There is great pain before, during, and after the flow. Complains especially of pelvic pain, constant over the left ovarian region, intermittent over the right. Sleeps but little and is extremely hysterical.

The uterus was found normal in position, size, and shape, while the cervix was eroded and gave exit to a free mucons discharge. A very painful area was revealed by the touch along the left side of the uterine, while on the right side there was thickening along the tube, which was very sensitive to pressure.

This patient remained under treatment pretty steadily for over a year, receiving frequent applications of electricity at first, but later on, as improvement became more pronounced and the freedom from pain more and more persistent, at longer and longer intervals, until finally by the middle of May, 1892, all treatment was stopped, her condition, although not then one of absolute health, being satisfactory to the patient, especially when compared with her previous state of constant suffering. Following the first few applications there was absolutely no relief, but later on, although the improvement was slow and rather intermittent, still it offered encouragement and induced her to persist, and ultimately she obtained days and even weeks of complete freedom from suffering. She never became entirely free of pain for a very long interval, but it never recurred again in its former intensity, and she had remained comparatively well when last seen, in June, 1893. At one time she interrupted treatment and entered one of our city hospitals with the hope of having something done for her entire and permanent relief, but after remaining several weeks she was finally discharged with the information that nothing could be done for her.

As a rule she was given galvanism, the clay ball in the vagina at first; later on, with the idea of curing the coexisting endometritis, the platinum sound within the uterus, the positive being always the active pole. Rather low intensities were administered in the beginning, from fifty to seventy-five milampères, but, improvement failing to follow, the current strength was gradually increased until from one hundred and thirty to one hundred and fifty milampères were reached at each sitting, the result being decided abatement of her sufferings. Faradism was several times tried, but failed to do any good; in fact, it rather seemed to aggravate her symptoms. On December 13th, 1892, my notes state that she had felt pretty fair since the previous May when she had received the last application of galvanism. Had had but very little pain in the interval. Felt satisfied with her condition, as she was able to attend to her work. Some pain was elicited on pressure over the left side, and the right tube was still thickened and sensitive. Not so hysterical as formerly.

June 17th, 1893, she again reported. In the meanwhile had grown very stout and rosy, but still had left-sided pain at times, though nothing compared to what it had been formerly.

CASE IV.—First seen June 30th, 1891. Annie B., æt. 34 years, married thirteen years, the mother of six children, and has had one abortion in the second month. Was operated upon November 29th, 1890, and again April 17th, 1891, the tube and ovary from one side being the first time removed, and when relief failed to follow, six months later, the remaining tube and ovary were also extirpated. She was told that on the first occasion a "tumor" was removed and on the second an "abscess." Felt better only for a short time after the second operation, or rather as long as she remained quiet, but now again feels as bad as ever. Maintains that the operations did her no permanent good. Menstruation has persisted somewhat irregularly, occurring too often, and at times of late is accompanied by considerable pain during the flow. Has some abdominal pain, but suffers mostly from pain in the lumbar and sacral regions, while defecation is the source of great torture, so much so, in fact, that a passage is dreaded and avoided as much as possible. In addition she complains considerably of nervous manifestations, such as flushings, flashes of heat, excitability, irritability, sleeplessness, and depression of spirits.

Examination shows the uterus to be left lateroverted, though movable. The organ is rather large and firm, while the cervix is somewhat deeply lacerated toward its left side, but not everted, the os giving exit to a copious muco-purulent discharge. On the right side of the pelvis a rather soft, flat, movable mass, sensitive on pressure and of the size of an English walnut, was detected. This body presented all the conditions characteristic of a chronically inflamed ovary, both as regards position, shape, size, feel, etc., and had I not been informed that the organ had been previously removed would have so considered it. The vagina itself was red and angry-looking.

This case has remained under observation up to the present time, and so far, although much better than when first seen, has failed to obtain permanent relief. Her sacral pain, though still occasionally returning, does so only at very long intervals and then never in its former intensity. Of pain in the abdomen she has none, while defecation, save only when she suffers from diarrhea, is absolutely without suffering and has now been so for fully a year and a half. Her nervous symptoms are in great part gone, her general condition is much improved, and she is able to work about without the usual penalty of pain. Menstruation has become less and less frequent, and now only occurs at intervals of about four months, and then the flow is rather scanty. As soon as she feels her old pain returning she immediately presents herself for an application of galvanism, which is sure to give her relief for three or four months. The mass which at first was found on the right side of the pelvis about in the ovarian region soon disappeared from this location, and later on was found deep down in Douglas' sac, resting upon the rectum, where it has remained up to the present time. At first movable and of the size of a walnut, it has now become firmly fixed and adherent, has steadily enlarged, and is now rounded, smooth, elastic, sensitive, and of about the size and shape of a mandarin orange. A third operation has been suggested, both by the original operator and the writer, for the removal of this mass, but this the patient declines absolutely to accede to, stating that she much prefers death to further mutilation with its uncertainties of relief as shown by her previous experience.

The plan of treatment pursued consisted in the application of galvanism, one pole within the vagina at the vault on the right side, the plus pole in the beginning, later the negative; the

indifferent electrode being at first placed anteriorly over the lower abdomen, and later on, when the mass had descended into Douglas' pouch, over the sacrum, the object aimed at being the passing of the current directly through the offending body. In the beginning rather low current strengths were resorted to, but, although there was some relief, the results not being deemed sufficiently satisfactory, a gradual increase was considered necessary, so that in time as much as one hundred and fifty, one hundred and seventy-five, and even two hundred milampères were given at a sitting, with the desired result. Faradism was on a number of occasions resorted to, but did no good. Cataphoresis also was tried, first with cocaine, then with a ten per cent watery solution of ichthyol. The former, although satisfactory as far as the relief of pain was concerned, caused certain unpleasant symptoms which forbade its further use; while the latter was equally satisfactory in respect to the pain and had the advantage that it induced no subsequent ill effects. All in all the patient has received eighty-eight applications of electricity, has remained almost three years under observation, yet still presents a large, sensitive mass behind the uterus which shows no signs of improvement, while contrarily she is in much better general condition, is able to do her own work, suffers pain only at long intervals, which can be quickly dissipated by a single application of galvanism, while movement of the bowels is no longer attended with suffering. True, she is not cured by any means, but electricity has been the source of much greater and more enduring relief than two surgical operations, and this independent of any risk to life.

(To be continued.)

A NEW LARYNGEAL TUBE EXTRACTOR.¹

BY

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(With two illustrations.)

EVERY physician who has performed intubation of the larynx has no doubt experienced more difficulties in the removal than

¹ Read by invitation before the Chicago Gynecological Society June 21st, 1895.

in the introduction of the tube, owing to the tube being so much smaller than the larynx. Having realized that the profession is in need of a new instrument to facilitate the extraction of tubes after intubation of the larynx, I have succeeded in devising an *electro-magnetic extractor* which I think fulfils all requirements.

For many years ophthalmic surgeons have used both permanent magnets and electro-magnets for extracting chips of iron from the eyeball, and various forms of magnets have been devised for this purpose. The instrument needed for this special purpose is an electro-magnet which can be fitted with polar appliances of various elongated forms which can be introduced into the wound in the eyeball to a sufficient distance to enable the particle of iron to be attracted and withdrawn.

The first person, to my knowledge, to apply the electro-magnet to remove the laryngeal tubes was Dr. John Bartlett, of Chicago. He constructed, about three years ago, an electro-magnet with a long, curved polar extension piece extending from the body of the magnet sufficiently far to reach the tube in the larynx, which is about five or six inches. His was made similar to the ordinary electro-magnet used to remove pieces of iron from the eyeball. Only the head of his tubes were of iron, the remaining body was of brass. The doctor informs me that his instrument, when excited by ten or twelve cantery cells, had a lifting power of a half-pound, which he did not consider powerful enough; therefore he discarded the magnet as a failure.

If Dr. Bartlett had discarded the long pole piece and had wound his wire to the end of the curved extractor, his instrument would have been a success. He failed to comprehend the physics of the magnet. His failure was due to the fact that the adding of a piece of iron to the front or working end of a magnet greatly diminishes the pull, while, on the other hand, putting the same mass of iron at the far end greatly increases the pull at the front end, or the end with which you work. The front end exerts a bigger pull when there is a mass of iron attached to the other end. The reason for this is that the whole iron core, including its front end, becomes more highly magnetized, because there is now a better way for the magnetic lines to emerge at the other end and come around to the front end. The iron is a better conductor for the magnetic lines than the air. The mass of iron diminishes the magnetic reluctance of

the air part of the circuit, and the flow of magnetic lines in the whole magnetic circuit is thereby improved. The softer and purer the iron composing the core the more numerous will be the magnetic lines passing through it. When we attach a long pole piece to the front or working end of an electro-magnet, as was done in Dr. Bartlett's instrument, the magnetic lines will stream backward from its edges and few will be left in front to act upon the piece of iron to be lifted. Putting on a pole piece to the front end of a magnet diminishes both the pull in contact and the attraction at a distance; it simply promotes leakage and dissipates magnetic lines.

The horseshoe is the best form of electro-magnet for lifting purposes, therefore the nearer we approach this form in the construction of a magnet the greater will be the pull, because everything that helps the magnetism to get from one end to the other increases the strength of the magnetic circuit. A typical two-pole or horseshoe electro-magnet cannot be constructed to be introduced into the larynx. I have constructed and experimented with an iron-clad or jacketed electro-magnet, but with negative results. This form differs from the simple bar magnet in having an iron shell or casing external to the coil and attached to the core at the far end. The shell or jacket provides a return path for the magnetic lines, which flow in one direction through the core and find an easy path back along the outside of the coil. Such iron-clad magnets produce less action at a distance across air than do the ordinary forms, but they give a greater pull in contact, because, as we have seen above, everything that helps the magnetism to get around to the other end increases the strength of the magnetic circuit. It is claimed by good authorities that jacketing an electro-magnet increases its pull sixteenfold. This applies only to straight magnets, for jacketing an electro-magnet which already has a return path, like a horseshoe magnet, is an absurdity. On account of the difficulties of jacketing a curved electro-magnet such as we are in need of for our purpose, I have not yet been able to give it a fair test, but am still experimenting in this line.

The instrument which I exhibit is given the form of half a horseshoe, and therefore is stronger than a bar magnet. On account of its curved form the magnetic lines that flow through the iron core do not encounter such a large air space as they would were the instrument a straight bar magnet. The dis-

tance from one pole to the other is shorter. It has practically no polar extension piece; the armature or tube to be lifted comes in immediate contact with the working end of the core of the magnet, and thus fulfils all the requirements for a perfect lifting instrument. The working end of the magnet, together with the covering of wire, is intended to be inserted into the larynx of the patient, and no force is lost. The greater mass of iron is at the far end to which the handle is attached. It is ten centimetres long and has the same curve as the O'Dwyer extractor, the working end being three and a half centimetres in diameter and the far end four and a half centimetres in diameter. A metallic handle screws into the large end of the core. The length of the whole instrument is that of an ordinary extractor. The tubes are of the O'Dwyer or Waxham pattern,

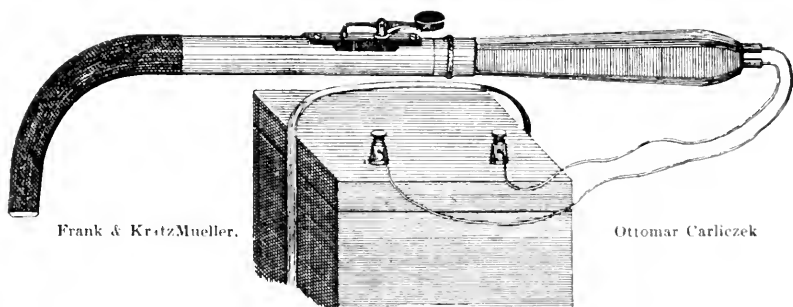


FIG. 1.—Laryngeal tube extractor.

and made entirely of soft pure iron instead of brass or German silver as are those at present in use. They are heavily nickel-plated, which in my opinion answers as well as gold-plating and is much cheaper. The iron-headed tube of Dr. Bartlett was retained in the larynx for a number of days without rusting, and one of my iron tubes remained four days in the larynx of a child, free from rust. If one wishes to use iron-headed tubes with brass body, I see no reason why they should not be just as readily lifted out with the magnet, since most of the magnetic lines will pass through that part of the armature, or, as in our case, the head of the tube, which is in contact with the working end of magnet.

The lifting power of the instrument, when excited by a storage battery of six volts and applied to the head of the smallest-size iron tube, is two pounds, and when applied to the largest-size children's tube is five pounds. Such force as this

will seldom be needed in the removal of tubes from the larynx. Any plunge or cautery battery of six volts will answer instead of a storage battery. The first instrument constructed has a current-breaker attached to the handle, which I have learned by trial on the living subject is not the best construction, since the operator, who is often excited at the moment, is liable to move the breaker and cut off the current, thereby allowing the tube to lose its hold from the extractor and fall back into the esophagus of the patient. This accident has already happened to me. Therefore I would advise that the current-breaker or contact-spring be eliminated from the instrument. An assistant should turn on the current by inserting a cord tip into the binding post of the battery while you are introducing the instrument into the patient's mouth; when (provided your battery is well charged) you bring the small end of the magnet into contact with the tube in the larynx you are sure to bring out the

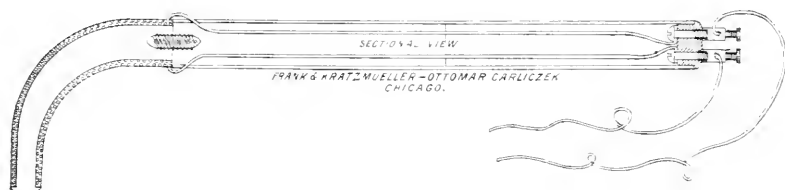


FIG. 2.—Sectional drawing.

tube, which will follow the instrument at any angle through the mouth. With this instrument the tube cannot become detached while following the curves of the mouth, as has frequently happened with the old form of extractor.

No extraordinary skill is required to use the magnet. The instrument and the battery may be left at the patient's house, and the nurse be instructed how to insert the magnet into the larynx should indications point to the urgent removal of the tube before the physician can arrive.

Dr. Ochsner has wisely suggested that the gag in the patient's mouth should not be made of iron, but of some non-magnetic material, such as rubber or brass. Dr. O'Neil, of the St. Joseph's Hospital, has devised a very good gag for this purpose. I use Dr. Henrotin's gag made of brass. An iron gag may be used, provided care be taken not to bring the magnet in contact with the iron gag while the current is on and the instrument is in

the patient's mouth, otherwise the magnet will adhere firmly to the gag and fail to exert any pull on the tube in the larynx.

A complete set of instruments such as I exhibit here, consisting of five nickel-plated iron tubes, one introducer, one electromagnetic extractor, one mouth gag, one six-volt storage battery with conducting cords and a metal case, can be furnished for \$60. This case which I exhibit is imported from Germany and is of far better workmanship than you generally find in this country. It is made of an alloy of nickel and copper called nickeline. A cheaper case can be made, making the set cost only \$50.

I was rendered valuable assistance in devising and perfecting this instrument by Messrs. Frank & KratzMueller, and Ottomar Carlizek, 56 Dearborn street, who keep them for sale.

315 NORTH AVENUE.

CORRESPONDENCE.

ANTISEPTIC OBSTETRICS.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—For a number of years an interested and profited reader of your pages, let me ask a small space in answer to statements in the July number.

Just why an experience of forty years or more as a country practitioner, or a refusal to observe some of the modern routine of scrubbing, syringing, and disinfecting the parturient patient—indeed, many of them would not tolerate this reflection on their cleanliness—should relegate us to the class of dangerous practitioners is more than I can understand; the classification is arbitrary and on bad lines. Without regard to age, experience, or location, there is an unlimited variety of medical men.

We have the thoughtful, toiling veteran, whose years of patient and often painful groping in the shadow of the great uncertainties that so abound in our profession have made him tolerant of the opinions of others, and charitable by visions of exploded theories. He gives clear but modest expression to his beliefs. Again, there is the self-confident man of narrow outlook, oracular in style, *ex cathedra* in positiveness, and charac-

terized by that assurance which Victor Hugo says would have sent little Gavroche with a hop-skip-and-jump up the steps of the great white throne. The more numerous class are the general practitioners, endless in variety and grade of usefulness, among them keen critics of theories and teachings, armed with interrogation points and asking for proofs, discriminating between physiological processes and pathological conditions, familiar with natural phenomena and respecting Nature's ability.

I know it is heterodox to ignore any modern fad, but of the heterodox there are not a few. Rejoicing in medical progress, they fail to recognize progress in many of the present hard-strained theories, and exercise the privilege of *free thought*, "*nullius addictus jurare in verba magistri*," realizing that "the first and last word in life's lesson is *doubt*."

I have the pleasure of being intimately acquainted with a number of this so-called dangerous class (for forty years country doctors); indeed, am of that complexion myself. I know their records in this line, and if one-half of one per cent may be considered an "unavoidable death rate" in obstetrical practice, I will state that one-half of that fatality would by them be considered discreditable. Yesterday I talked with a veteran of forty-eight years' extensive practice, strictly country, with a record of not less than fifteen hundred cases and only one death, and that from placenta previa (*strictly non-microbic in its origin*). I know of what I write, and the death rate among the veteran practitioners of this section will not average one in five hundred, and most certainly should it reach one-half of one per cent in the absence of some extraordinary epidemic we would begin to question our methods. We know the value of soap and water, we appreciate clean bedding but cannot always obtain it, we have not always that efficient nursing nor helpful control of our patients and their surroundings that is so greatly in aid of maternity practice, but we do not disregard the old list of etiological factors in relation to puerperal fever, nor have we entirely changed our theory of their prevention and treatment; briefly, we endeavor to be always aseptic, ignoring antisepsis in the absence of septic agents. Call us fogies, if you please, but let results disprove our *dangerous character*, at least in the field of practical obstetrics.

O. EVANS, M.D.

FRANKLIN, OHIO.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, June 21st, 1895.

The President, FRANKLIN H. MARTIN, M.D., in the Chair.

DR. W. W. WETHERLA exhibited

A NEW LARYNGEAL TUBE EXTRACTOR.¹

EXHIBITION OF PATIENT.

DR. A. J. OCHSNER (present by invitation).—This patient is interesting because she is very small and would consequently offer great difficulties in the removal of an intubation tube with an ordinary extractor, and because I removed an intubation tube with the magnetic extractor.

She is 16 months old. Intubation was performed for relief of an obstruction caused by the inspiration of a raisin four weeks before she came under my care. Tracheotomy had been performed at the time of the accident, but the child was still unable to breathe without the use of a canula, hence the substitution of an intubation for a tracheotomy tube.

The smallest tube of the usual set was first inserted, but this did not reach beyond the obstruction. Dr. Wetherla's magnet was applied in the manner described by him and the tube was withdrawn with perfect ease and without causing pain.

A larger tube was now inserted and the child breathed well until four days later, when she suddenly became asphyxiated from accumulation of mucus in the tube.

The magnet was again used, the mouth being held open by a steel gag.

In trying to withdraw the magnet I found that the traction was upon the gag, which it had accidentally touched, instead of being upon the tube. Not having anticipated this condition, the accident was at first quite puzzling.

The current was interrupted and the magnet applied more carefully, and now the tube was removed without difficulty and without in any way injuring the tissues.

The extractor is blunt, as you see, and it is practically impossible to injure the larynx with it.

Its form is very convenient, so that the end of the tube can be touched with it just as easily as with the finger.

The whole performance is so simple that I am certain a novice

¹ See original article, p. 405.

or a layman could remove the tube much more easily with this instrument than an expert with the ordinary extractor.

DR. JOHN BARTLETT.—I have just one thing to suggest in reference to this magnetic extractor. When we thought of extracting a tube in this way, the presumption was that there would be great difficulty unless the facet of the extractor was placed parallel with the surface of the head of the tube and got in that way a good hold upon it. It seemed necessary that this exact relation of the tube and the surface of the extractor should be maintained, but fortunately in practice no such necessity is found to exist. At whatever angle you hold the extractor relatively to the tube, and whether the point of contact be great or small, the magnetic hold of the instrument upon the tubular armature appears to be the same, so that the promise is that even the uninitiated, with some instruction, may be able to use the instrument with success.

DR. HENRY T. BYFORD.—I exhibit these specimens to illustrate methods of operating:

I. SUPPURATING OVARIAN CYSTOMA.

The tumor was larger than a child's head, thin-walled, and contained a pint and a half of pus. What I want to illustrate by it is the method of vaginal drainage which was employed. After this tumor was enucleated there remained a cyst about the size of a hen's egg, which I could not completely enucleate. The intestines were adherent over it, as they are in nearly all cases of large suppurating cystomata, and the tumor filled, and was firmly adherent to, the pelvic walls. After I had gotten it out I found I would have to pack the pelvis with gauze in order to check hemorrhage and prevent infection of the general peritoneal cavity. I therefore punched a hole into the vagina through the cul-de-sac of Douglas and packed the cul-de-sac thoroughly with iodoform gauze. Before packing I attached a ligature to the upper part of the lacerated broad ligament and pulled the ligature down and out through the vagina and thus diminished the amount of raw surface. I closed the abdominal incision completely. Soon after the operation the temperature went up to 102 and a fraction, which was to be expected after an operation of this severity, but the temperature reaction quickly subsided and the temperature became normal. The case illustrates beautifully the advantage of vaginal drainage in cases of abdominal section.

II. DOUBLE PYOSALPINX.

I show these specimens because I removed them through the vagina and without removing the uterus. I was told by one of the most eminent operators in London, when I commenced to operate in this way, that I would run my head against a stone

wall if I did not stop it. I have frequently removed pus sacs through the vagina without removing the uterus, and have not yet lost any cases except one in which I at the same time removed the uterus, and which I am satisfied would have been successful had I let the uterus alone. This pus sac was quite large and firmly adherent. The patient has had practically no reaction whatever.

III. FIBROID TUMOR.

This is a fibroid tumor that I removed through the vagina. I brought it merely to show how large masses can be easily removed through the vagina without trouble. I removed it by morcellement, but did not do it as the French do in this respect; I did not use forceps, but used only ligatures. It took a little while to get it down, as the broad ligament was somewhat rigid, but by tying a portion at a time it came down, and by cutting the uterus in pieces I succeeded in getting it out. I then pulled the ligatures down and attached the peritoneum to the vagina. There has been no oozing since to speak of, hardly enough to moisten the gauze in the vagina; there was a very small peritoneal opening which I left purposely to drain the peritoneal cavity. When forceps are used such adjustment can seldom be made. This tumor also illustrates a point bearing upon the necessity of removing fibroids. The patient was 48 years old. We have often been told that it is not necessary to remove a fibroid from a woman that old. She has been sick four years. Menstruation has been regular. There has been no dysmenorrhea, amenorrhea, or metrorrhagia, but of late the flow has lasted six days, increasing in amount. The last two years the uterine cavity has grown an inch in depth. For over a year she has taken half a drachm of the fluid extract of ergot three times a day. As the tumor was growing the woman wanted to have it taken out before it got so large as to render it necessary to make an abdominal incision.

DR. T. J. WATKINS.—I want to commend the method of drainage which Dr. Byford employed. The difference in recovery of the patient after vaginal operation and laparotomy is very marked, in that recovery is much smoother after vaginal than abdominal section, and the principal reason of this, it seems to me, is that better drainage is secured by vaginal than by abdominal section. Much has been said about the efficiency of capillary drainage; however, it is practically impossible to get as good drainage through the abdomen as through the vagina. Undoubtedly the incision made in celiotomy does not account for the symptoms being severer after abdominal than after vaginal section. The manipulation of the intestines incidental to the abdominal operation may, however, account in part for the severer symptoms. Of late I have used vaginal drainage after doing laparotomy in preference to abdominal drainage. In two

or three instances I have opened into Douglas' pouch through the vagina, completed the operation through an abdominal incision, and then used the vaginal opening as a means of drainage. In one case, after removing a fibroid uterus complicated by diseased appendages, I incised from the vaginal side into Douglas' pouch and thus secured vaginal drainage. I am nearly convinced that abdominal drainage should never be employed when drainage through the vagina can be easily secured.

DR. J. D. EMMET (present by invitation).—I am much interested in this subject, though my own experience in the vaginal route of operation is very limited—practically *nil*. The subject is certainly one which has interested the profession a great deal. At the recent meeting of the American Gynecological Society it was the most interesting subject discussed, especially as brought out by Dr. Henrotin's paper. I do not think, however, that enough has been said about the extreme difficulty of doing the operation and of working through the cul-de-sac in certain cases. I have one case of my own in mind, of a large fibroid which filled the abdomen pretty well and also sank deep in the pelvis. I thought that, previous to taking it out by laparotomy, it would probably be easier to tie the uterine arteries from below. The woman was very stout, had a deep, narrow vagina, and in making my incision behind the cervix, and before I entered the cul-de-sac, I unfortunately cut the circular artery. It took ten or fifteen minutes to find and secure the ends of the vessel in the connective tissue. It took up so much time that I finally abandoned my purpose of tying the arteries from below and proceeded to open above. I think this is an important thing to remember. Almost all the men who spoke on the subject at the meeting in Baltimore spoke enthusiastically, but they did not tell us of the extreme difficulty of operating in certain cases.

DR. H. P. NEWMAN.—I think Dr. Byford has devised a method of packing after vaginal hysterectomy which the Society would be glad to know more about, as it is somewhat different from that used by others.

DR. H. T. BYFORD.—All I do that is peculiar is that I do not pack very much; I simply pack to the peritoneal edges. If there have been adhesions I pack in the cul-de-sac, but never up among the intestines. All I want is to drain the bottom of the peritoneal cavity. If you have hemorrhage you have got to pack to the place of hemorrhage, which is always on the side or below. If you have forceps pack up along the forceps, but do not allow the packing to project above or beyond.

In regard to iodoform gauze, I do not myself think it is a good drain. The efficiency is in having enough gauze to absorb about all the fluid which exudes; the pressure of the gauze will prevent much of it, and the gauze should absorb the rest.

DR. J. D. EMMET.—I am very much interested in what Dr. Byford has just told us in regard to drainage by gauze. I have

noticed that after curetting, where the uterus has been packed tightly with gauze, which a number of men have recommended as being very important—in fact, necessary—the organ does not drain at all, but if the gauze is put in lightly it will drain. We have all probably noticed that in a uterus packed tightly, when we have taken out some of the gauze, then drainage begins and a lot of fluid which has been dammed up will come out.

DR. FRANK A. STAHL.—I would ask if any of the gentlemen have tried iodoformed absorbent cotton as a drain. Several years ago, in performing tracheotomies and celiotomies for appendicitis and for drainage of pelvic and mammary abscesses, I formerly used iodoformed gauze, but some of the objections that Dr. Byford has called attention to presented. I then tried iodoformed absorbent cotton for drainage, and with such success that I have continued its use. Strips of absorbent cotton drain more perfectly, are less irritating, and do not plug like the gauze; in the siphon test absorbent cotton is superior to either gauze or wicking. It has been my custom, especially in pelvic and mammary abscesses, to drain with iodoformed absorbent cotton strips, and have never found any accumulation after removing the cotton strips. An objection might be offered to the cotton by the ultra-germists that small filaments of cotton might become detached and form foci for germs, but this objection also is true of gauze. I have never been troubled with such a phenomenon, and I have never had cause to regret introducing iodoformed absorbent cotton strips as drains in my surgical work.

DR. F. H. MARTIN.—I would like to ask Dr. Byford what drainage tube he employs in conjunction with gauze drainage in the vagina. Dr. Watkins suggested the possibility that the slight shock following vaginal hysterectomy was due to more perfect drainage than obtains after abdominal section. It occurs to me that that statement may not be strictly true. Is there really more shock from abdominal operation, if proper glass tubal drainage is employed, than from vaginal operation? When shock occurs after abdominal operation is it not because there is no drainage? When the glass drainage tube is used after abdominal operations I believe that the patients are very much more comfortable, have less peritoneal irritation, less rise of pulse, and less nervousness than when no drainage is used. It is a question in my mind whether there is not less shock after abdominal operations than after vaginal operations. I believe that iodoform gauze makes a very poor drain, and unless used very loosely is simply a dam. In all vaginal work I invariably pack very loosely with gauze, but if I desire free drainage I use a glass tube. I use a glass drainage tube in every case of abdominal section where there is the slightest reason to believe that half an ounce of fluid will accumulate in twelve hours; I use it in almost every case because it does absolutely no harm, and occasionally I use it where it really does not seem indicated, but

where it appears very fortunate to have been employed on account of the large amount of drainage which occurs.

DR. H. P. NEWMAN.—I asked this question of Dr. Byford in regard to drainage because I think it a very important feature in hysterectomy per vaginam. I have recently had an opportunity of opening the abdominal cavity after vaginal hysterectomy, and noticed particularly that the forceps aperture was dangerously near the intestines. No plastic material had formed around the iodoform-gauze drain twenty-four hours after operation. This was probably due to the low state of the patient. I suspected possibly a slight hemorrhage in the abdominal cavity, but I did not find this, and attributed the low condition to the shock alone. It impressed me with the great importance of properly placing a drain and of the material to be used. In vaginal hysterectomy, whether ligatures are used or forceps, the stumps of the broad ligaments and all abraded surfaces should be brought well down into the vagina, and the gauze packing carried beyond and above them so as both to drain the wounded surfaces and support the vaginal roof in such a way as to prevent hernia of intestines or omentum; but neither the packing nor the forceps should project into the peritoneal cavity. I believe iodoform gauze is not a suitable drain in certain cases. The cross fibres and longitudinal fibres will so mix up that they frequently do not answer the purpose of an outward drain from the abdominal cavity or from the uterus. Then, again, the quality of iodoform gauze, whether moist or dry, is extremely important. I have found iodoform wicking answers an admirable purpose in the uterine and abdominal cavities; its fibres run in only one direction, longitudinally, and it is made of material that affords very excellent drainage. I believe one reason why better drainage is not accomplished in the uterine cavity is that the exit along the canal is too thoroughly packed with gauze. The upper and lateral surfaces of the uterine cavity can be pretty thoroughly packed with proper material, and if loosely packed about the internal os and from there downward good drainage will be assured, particularly if iodoform wicking is used. Another question arises, whether it is not possible to overdo drainage in this class of cases. In vaginal operations where an opening is left into the peritoneal cavity, and there is not only oozing from the abraded surfaces but also the escape of the peritoneal fluid, we may have this natural protection to the peritoneal surfaces entirely drained away.

DR. SAMUEL L. WEBER presented a

CASE OF FEMORAL HERNIA OF A CYST OF THE BROAD LIGAMENTS.¹

DR. M. L. HARRIS.—I think there is some doubt about the diagnosis; it is unfortunate the doctor did not clear up this point. Of course the swelling may have been a parovarian cyst, but it seems to me more likely to have been a hydrosalpinx.

¹ See original article, p. 377.

The fact that the probe passed into the pelvis in an abdominal direction toward the uterus—I believe the doctor said up to the side of the uterus—is not diagnostic of a parovarian cyst. It may merely have passed into the Fallopian tube. Prolapse or hernia of the Fallopian tube is not rare, and several cases of cysts of herniated Fallopian tubes have been recorded. This tumor may have been simply a hydrosalpinx. There is a case reported by Lentz of a parovarian cyst in a hernial sac in a woman 52 years of age. She had no hernia during early life, nor until up to a year previously, when she noticed a small swelling in the inguinal region, and three months previous to the time she consulted the physician it had grown quite rapidly and become painful. When she consulted the surgeon it was about the size of a goose egg, fluctuating and movable, with no impulse on coughing, and irreducible. It was diagnosed probable hydrocele of a hernial sac. At the operation what was supposed to be the hernial sac was opened, disclosing a cyst. Just above the cyst and plugging the neck of the hernial sac was the end of a Fallopian tube. It was drawn out and ligated and the entire mass removed. After its removal it was found to be a parovarian cyst, a small cyst in the broad ligament, the tube lying above it and blocking the hernial canal. The patient made a perfect recovery.

DR. H. P. NEWMAN.—The point raised by Dr. Harris is well taken. As he states, the condition is not uncommon, while the condition spoken of by Dr. Weber is very rare, if it ever occurs. I wish, for the purpose of diagnosis, the doctor had entered the abdominal cavity and cleared up the doubt upon this point.

DR. FRANK A. STAHL.—I would ask Dr. Weber the points upon which he bases his diagnosis in this extraordinary case. The diagnosis seems rather vague and does not appear to be substantiated by good evidence. The case appears to me to be an ordinary case of hydrocele.

Official Transactions.

T. J. WATKINS, *Editor*.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, December 21st, 1894.

The President, HENRY D. FRY, M.D., in the Chair.

DR. GEORGE BYRD HARRISON reported a case of

PUERPERAL ECLAMPSIA.¹

DR. W. SINCLAIR BOWEN said the case reported by Dr. Harrison was one of peculiar interest, especially as to the striking

¹ See original article, p. 365.

effect produced by the *veratrum viride*. Most of the cases of puerperal eclampsia seen by him had been in hospital practice. There it was the practice to administer an anesthetic and deliver with forceps. Had recently had a case in which the urine had been frequently examined with negative results. He was called to see the woman upon the day of expected confinement and found her in convulsions. He delivered her of a dead child, the woman recovering. He would prefer the introduction of the solid bougie to the injection of glycerin.

DR. H. L. E. JOHNSON said he congratulated the gentlemen upon the good results obtained in the treatment of puerperal eclampsia by *veratrum viride*. Had seen a case in Columbia Hospital which was treated with that drug without any good results, but much smaller doses were used than were recommended in the paper. He preferred to immediately empty the uterus in preference to bringing on slow labor. He used the forceps or version. Anything that would assist in these cases was desirable to be known. He emphasized the importance of prophylactic treatment, and said he indorsed the recommendations set forth by Dr. Fry in a paper which he had read before this Society some time ago.

DR. A. F. A. KING said that from accumulated testimony it was demonstrated that *veratrum viride* did good. Ten drops were given in the case reported. That was not a large dose. The good effects of the drug were obtained by keeping the pulse below 60. Five drops should be given every half-hour to produce that condition. But it did not always control: had seen two cases at Columbia Hospital to which *veratrum viride* had been given, and, though the convulsions did not recur, both patients died. The glycerin used was sterilized by boiling. Labor came on in two hours after injection. He did not agree with Dr. Johnson in all cases to immediately and hastily empty the uterus. The irritation of that procedure might induce convulsions. Where there are no convulsions let the labor proceed by gradual dilatation. The result in the case reported was due to the careful management instituted after she came under the care of Dr. Harrison. It would be interesting to know why *veratrum viride* controlled convulsions: perhaps by lessening blood pressure. It was also interesting to inquire why the convulsions stopped: the patient was anesthetized by carbonic acid retained in the blood. When there was less arterial blood and more venous, anesthesia was more complete.

DR. H. L. E. JOHNSON said he had thoroughly studied the subject several years ago. Matthews Duncan held that the convulsions were due to increased blood pressure and the irritation of materials not removed by the kidneys. *Veratrum viride* relieved blood pressure and to that extent was beneficial.

DR. T. C. SMITH said there were several points that he would like Dr. Harrison to clear up. Was there any pitting of the

limbs or any disturbance of vision? Was there any quantitative analysis of the urine? He would like to know how long it was after the hypodermatic injection before consciousness returned. If the patient had none of the usual symptoms premonitory of eclampsia, what was the condition of the kidneys if the elimination of urea was good? If the kidneys were in bad condition why did he use ether instead of chloroform? What effect had the glycerin when he left the catheter *in situ*?

DR. J. W. BOVÉE said there was a great deal of speculation as to what stopped the convulsions. One-third of a grain of morphia would sometimes stop them. In this case there were only two convulsions. Ether increased engorgement of the brain; chloroform would have been preferable. He avoided ether when there was any trouble with the kidneys. He thought venesection one of the best remedies in plethoric women.

DR. A. F. A. KING said the woman had a most intense frontal headache just before the convulsions occurred. The woman did not know what had taken place, though she was able to express herself as feeling comfortable. He insisted upon keeping the room dark and still, as a valuable aid to preventing recurrence of the convulsions. The patient's expression of comfort was due to the effect of the morphia. There was no doubt of uremia.

DR. T. C. SMITH inquired if the child had uremic narcosis when it was born, where did it get it?

DR. HENRY D. FRY said he was particularly interested in the matter under discussion, as the first paper he had read before this Society was on that subject. He was surprised that Dr. King still adhered to the old theory that eclampsia was due to pressure on the kidneys. He thought that idea had been discarded long ago. The gravid uterus could not press upon the renal veins. The pathological condition of the kidneys did not show any kind of congestion, but there was anemia. Prophylactic treatment would in the vast majority of cases prevent eclampsia. It was important to ascertain the amount of urine and urea excreted. Less than twenty ounces should lead one to expect eclampsia and would indicate the induction of premature labor. He did not so much consider the amount of albumin present. He had induced premature labor in a number of cases with safety to mother and child. In one woman he had brought on premature labor three times. As to the method of inducing labor, he thought an aseptic solid soft bougie the best thing to be used. In the case reported he thought the catheter was the active agent. He would not use a catheter, because it could not be made aseptic. He would not use glycerin, because it was a more complicated process, requiring besides the glycerin a syringe and catheter. The bougie was simpler, and in one case labor came on in fifteen minutes after its introduction. To palliate, morphine was best; it might be administered every fif-

teen minutes. *Veratrum viride* was beneficial in those cases with bounding pulse. He would not give atropine because diaphoresis was desired.

DR. A. F. A. KING said he was sorry to surprise Dr. Fry, since surprise had been described as reason dethroned. There were many causes of eclampsia; pressure was a cause, also the condition existing in gin-drinkers. The advantage of glycerin was its promptness of action. Knew of no case in which glycerin did not cause contractions within two hours. The bougie was slow. Germs may follow the outside of the bougie as well as enter through the catheter.

DR. GEORGE BYRD HARRISON said that he thought he covered all the points made by Dr. Smith by saying that qualitative analysis only was indicated. He said it was expensive to take daily quantitative analyses. The point he wanted brought out was whether the catheter *in situ* brought on the labor or not.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Meeting of May 7th, 1895 (continued).

DR. H. MARION SIMS presented three specimens:

I. MULTIPLE FIBROID OF THE UTERUS WITH A FIBROID OF THE OVARY.

Mrs. K., aged 49, mother of two children, the last of whom was born twenty-two years ago, had always been a strong, healthy woman, and never had to have a doctor in her life except for her confinements.

Two years ago she began to experience a continuous backache, headache, and dragging across the lower part of the pelvis.

The menstruation became gradually more profuse, until latterly it lasted for more or less the whole of the month. She consulted me two months ago. I found she had a multiple fibroid of the uterus and advised its removal.

An abdominal hysterectomy was performed a few days later. I was rather surprised to find that the tumor I had felt in Douglas' cul-de-sac was not a part of the multiple fibroid of the uterus, as it had seemed to be a part of the mass and could be moved within the pelvis with the uterine tumors. It was attached to the uterus by firm adhesions, which, however, were easily broken up. I found it to be independent of the larger and removed it. The uterus was removed in the usual way. I think the tumor is a fibroid of the ovary. The patient made a good recovery.

II. DOUBLE DERMOID CYST OF THE OVARIES.

Twenty-two years ago Mrs. Z. consulted my father, complaining of a burning pain in her left side. He found she had a small ovarian tumor about the size of an orange. He said: "My dear madam, we only operate on these tumors to save life. It will be many years before it reaches that stage; when it does, come to me and I will remove it." The tumor has been slowly growing ever since. She came to me three weeks ago and said she thought the time had arrived when it was necessary to operate to save life. She was enormous in size and very short-breathed. I found a large tumor with almost imperceptible fluctuation. I said before operation that I thought we would find a dermoid cyst. The operation was done two weeks ago. It proved to be a large dermoid of the left ovary weighing thirty-eight pounds, and a smaller one of the right ovary weighing a little over two pounds. Each tumor contained very thick, heavy fluid, as thick as gelatin, and numerous teeth, bone, and hair. The most curious specimen removed from the larger tumor is a link made of hair and resembling a perfectly formed miniature freight-car link.

III. CASE OF CHOLECYSTOTOMY; TWENTY-EIGHT LARGE GALL STONES.

Mrs. T., aged 32, mother of two children. Following birth of second child, six years ago, she had an attack of peritonitis. After a slow convalescence she was greatly troubled with constipation, which seemed to become worse each year. She then became subject to frequent attacks of jaundice, but never had passed a gall stone or had any special pain in the region of the liver. Three years ago I treated her for this condition and she seemed to improve greatly. I sent her to Europe, to the springs of Carlsbad, two years in succession, and each time she returned very much improved. Two months ago she complained of severe pain at the junction of the ascending and transverse colon, and quite a hard mass could be felt there. Her movements from the bowels were never well formed, being very thin and drawn out. I gave it as my opinion that some narrowness of the colon had been caused by a band of adhesions running across the transverse colon, rendering its calibre so small as to cause a collection of fecal matter, which was the mass I spoke of. We had a consultation with another physician, who differed with me and thought the bowel was the seat of some malignant disease. I decided to operate, nevertheless, and did so five days ago. I found the transverse colon constricted, just an inch to the left of where I thought it was, by a firm band running diagonally from the under surface of the left lobe of the liver to the umbilicus. The mass was impacted feces. The gall bladder contained twenty-eight stones, all of one size and shape. The patient is now doing well and is out of danger.

Dr. A. F. CURRIER reported

A CASE OF OCCIPITO-POSTERIOR PRESENTATION WITH VARIOUS
OTHER COMPLICATIONS, RESULTING FATALLY TO
BOTH MOTHER AND CHILD.

Most of us do not enjoy reporting our unfavorable and fatal cases. It is a question whether if all such were reported and the favorable ones left unreported the benefit to humanity would not be greater. Such a result is not likely to happen soon, for that which brings glory is usually preferred to that which brings regret and criticism.

The patient in question was a strong, apparently healthy Irish-woman 32 years of age, pregnant for the third time. Her menstrual history and her history in general prior to marriage presents nothing unusual. Her pelvis was capacious and normal in all respects. She employed me as her accoucheur at her first confinement, in July, 1893, this labor being delayed six weeks beyond the expected time. The presentation was normal, but the labor was tardy and the pains feeble, and I was obliged to conclude it instrumentally. A large and vigorous male child was delivered, and the subsequent puerperium was normal in all respects.

In 1894 she became pregnant a second time and aborted at the third month, no definite cause being ascertained. Soon afterward she became pregnant for the third time, and about the middle of February in the present year called upon me and wished me to attend her again, the time determined upon being the week of March 24th to 31st. Up to that time she had been in excellent health and I could discover nothing in her condition which gave rise to any anxiety as to the future. A week before her confinement a niece 16 years of age who was living with her was taken with peritonitis, perforation of the duodenum, and died in the arms of my patient, as I was informed, after only a few hours' illness, vomiting and purging upon her before she expired. An autopsy was performed in the house under conditions which added to the shock and strain of the previous experience.

At noon March 25th labor began and progressed for five or six hours with great rapidity. She was seen by my assistant, Dr. Smallwood, who informed me that the waters had come away and that the probabilities were that she would be quickly delivered. Some of the fluid which came away from her had been retained, with urine, in the chamber and resembled dish-water in appearance. I regret that it was not saved for microscopic examination.

I found the first stage of labor nearly completed, the occiput posterior and to the right, the head at the superior strait. The membranes had not ruptured, and the fluid discharged had originated outside the ovisac, unless the membranes had ruptured

above the presenting part. Almost complete inertia followed during the next five hours. There was sufficient force to cause the head to descend somewhat lower in the pelvis, inclining the left side lower than the right and rotating the occiput toward the left side of the sacral cavity. I had been unable to excite pains, having used morphia and atropia hypodermatically, a hot vaginal douche, and kept the patient walking about her room as much as was deemed prudent. Between 11 and 12 p.m. I determined to try and deliver, the patient having been in labor twelve hours. The membranes were ruptured, the hand readily passed within the cervix, and not only the faulty vertical position referred to was found, but the child's left hand, the cord, and marginal attachment of the placenta, hemorrhage appearing externally as soon as the membranes were ruptured, and continuing, though not in excessive quantity, until the conclusion of the labor. I endeavored to push up the head with my hand and bring the occiput into the first vertical position. This failing, I endeavored to do the same with forceps, but was equally unsuccessful. Traction was then applied until I was exhausted, without success. Dr. Smallwood was equally unsuccessful. The muscular fibres at the os internum were then divided with scissors by two incisions, but this gave no better result. Podalic version was then performed, but unfortunately with the anterior instead of the posterior surface of the child to the front. The child's body having been delivered, the arms were found on each side of the head. With the greatest difficulty I at length succeeded in extricating them, then turning the child's head in the pelvis. The forceps was then applied, and by combination of forceps traction with the hands to the anterior and posterior surface of the head the latter was delivered. The uterus contracted quickly under the influence of a hot douche, and the rents in the uterus, perineum, and vulva were at once closed. There was no hemorrhage after the wounds were closed.

The child was a very large male, and it had been stated to me that the mother had felt no life since her unfortunate experience of the previous week. There was no sign of life when the child was delivered. Placenta and membranes were expressed almost immediately after the birth of the child.

The mother rallied soon after the labor was concluded, under the influence of heat and cardiac stimulants. She complained of great thirst, as is so frequently the case after shock and hemorrhage, and I may have erred in giving her cold water freely with ergot, as her stomach did not retain it. She had feelings of impending death, which, with a woman of strong common sense as she was, is usually ominous. The following day she was fairly comfortable except for occasional vomiting, and at 5 p.m. I thought the condition so favorable that I did not deem it necessary to see her in the evening. Early the next morning she went into collapse, and but for the timely assistance of Dr.

Smallwood she would have died at that time. Stimulants and heart tonics were given almost continuously, but in the course of the day peritonitis developed and she died about forty hours from the conclusion of labor.

The questions which I would like to have answered are: Would any other course of management have been preferable? Has traction with forceps a legitimate field in occipito posterior presentations? If so, what are its limits?

The mechanism of labor in these cases being such that uterine inertia is prone to occur, what limit of time should be allowed before active interference is instituted?

Symphysiotomy was contemplated, but would not have been allowed. In private practice its field is necessarily restricted.

DR GRANDIN would say a word in reply to Dr. Currier's first question, but he did not wish to be understood as contending that if a different course of action had been followed the ultimate result would have been different. If the gentleman would pardon the criticism, he would say that, on listening to what had been attempted after interference had been determined upon, he was carried back to his student days, to obstetrical teaching which now he considered bad and had abandoned. It seemed to him that when one had to deal with the condition described—the woman nearly exhausted, a bad position of the presenting part, a marginal attachment of the placenta, a hand down—that the last thing in the world which one should do was to endeavor to rectify the position of the head or to employ forceps. Rather rupture the membranes and perform version. His criticism was not against what the doctor had done so much as against a prevalent method. There was one thing in obstetrics which men of to-day had yet to learn—namely, that there was nothing more dangerous than these useless manoeuvres at the pelvic brim when the conditions were present which indicated a simple procedure, version. It seemed to him that had the doctor ruptured the membranes, seized a foot, and turned the child, he might have delivered the woman without lacerating the lower uterine segment, and perhaps without the ultimate development of fatal symptoms.

DR. R. A. MURRAY did not wish to criticise the case related, but, inasmuch as an opinion had been asked, he would say that he agreed entirely with Dr. Grandin's remarks. He thought the modern treatment of occipito-posterior position certainly was to endeavor to remedy the malposition with the hand, but, failing, do version. Further, where one had lateral implantation of the placenta he could not get the head down quickly enough with the forceps to stop hemorrhage. The first step in placenta previa was to get the body of the child down so as to press on the placenta and prevent hemorrhage. Lateral implantation of the placenta prevented the head from coming into the inferior strait, and one could not hope for dilatation of the cervix. It

was a great mistake which most men had in mind, that attachment of the placenta well down, either laterally or centrally, rendered the cervix softer. In many such cases the cervix, instead of being softer and more easily dilated, was much firmer and harder to dilate than usual. It was succulent, yet it did not dilate well. Further, to attempt to increase the dilatation by making incisions was also a dangerous procedure, for the reason that the low attachment of the placenta was likely to cause infection of the wound by septic secretions. He believed that, had Dr. Currier ruptured the membranes, introduced the hand, and seized the feet, he could have extracted the child alive and would certainly have spared the woman great loss of blood during the time he was using forceps. To use forceps on a child above the brim was much more dangerous than version, and was likely to complicate the latter procedure greatly should it be resorted to later.

Dr. MARX said, if he remembered correctly, the child was not alive, and he saw no reason why forceps or version should have been resorted to. By perforating the head and extracting the child it was probable the mother would have been saved.

Dr. TUCKER thought the question hinged on whether the child was or was not alive. If it was dead, do craniotomy; if alive, do version.

Dr. CURRIER thought the gentlemen had overlooked some of the important points in connection with the case. Probably he was in error, as occurred to him after the case was over, in not performing version at the beginning, but he had been influenced in taking the course which he did by satisfactory experience at the previous confinement. He had delivered the same patient successfully with forceps in a former labor. There was recent authority for the course pursued to be found in the works of Charpentier and Herman. As to Dr. Murray's remarks, he would repeat that the first stage of labor had long been completed and there was no difficulty in introducing the hand or forceps. With regard to the criticism concerning the hemorrhage, the head was brought down sufficiently low, so that hemorrhage was not dangerous. There was no rupture of the uterus except at the cervix. He might add that it was his first fatal case, and believed that if all such cases were reported for criticism the benefits to the world at large would be far greater than from the more agreeable task of reporting successes.

Dr. S. TYNBERG presented photographs of

A CASE OF PYGOPAGUS—JOINED TWINS.

On the 15th of April, 1895, I was called to deliver a woman, whom I found in the last pains of labor. Examination revealed the head low down on the perineum, membranes already ruptured, otherwise nothing abnormal was discovered. After the

lapse of about half an hour the head was delivered, whereupon I applied traction, delivering with some difficulty the body of the child as far as the middle of the sternum, the rest of the child not yielding. I then made an examination, thinking perhaps I had a case of fetal ascites to deal with, and decided to enter the vagina and deliver the feet, which (with the remainder of the body) was accomplished with little difficulty. After the child was ushered into the world I discovered that it could not be taken from the mother, and after disentangling the cord from the feet my attempt to remove the child was still resisted. On inserting my hand into the vagina two feet presented. Traction was applied to the feet and the second child was delivered. Only after the birth of the second child was I aware that it was



a monstrosity. The placenta, which was expressed easily by the Credé method, was about normal in size.

The cord (single at the attachment) was implanted at the edge of the placenta (marginal implantation), bifurcating at about one inch from the attachment.

The children are female. The bond of union is latero-posterior, from the lumbo-sacral articulation to the top of the coccyx, the right sacro-iliac synchondrosis of one child being joined to the left sacro-iliac synchondrosis of the other. The coccyges fuse, and there may be fusion of the spine at the termination of the coccyx. Lying naturally their points of vision would form at the intersection an angle of about one hundred and forty-five degrees. Their combined weight was a little over nine and a half pounds.

The genitals are displaced backward, fusing at the point where the rectum should be; each child has its separate generative

organs, urinating at different times. There is but one anus and rectum, though the rectum divides a short distance above. It is situated between the right buttock of one child and the left of the other, apparently at the side of each child if viewed individually, at a point corresponding to the intersection of two imaginary lines, one drawn through the median line of the right thigh of one child, the other through the corresponding part of the left thigh of the other. They apparently defecate simultaneously, though I am of the opinion that this seems thus only because of the existence of but one anus. When the feces reach the anus



the impression on the nerves is transmitted to both children, and hence both press at the same time.

The bond of union appears to be only ligamentous, no pulsation being present. The pulses are not synchronous; they neither sleep, cry, nor feed at the same time, being two distinct individuals. The band is one and three-eighths inches in width at junction, two and a half inches in length, and about five and a half inches in circumference.

Sulcus in front is one and a half inches in depth; sulcus in back almost *nil*.

One child was at birth, and is still, smaller than the other, the former being the first born. The cord of the first born came off on the fifth day, that of the second on the sixth. They are being

fed artificially and are thriving. The feasibility of separating them will come up in a short time.

DR. J. RIDDLE GOFFE, who was detained at home by illness, sent a paper, which was read by Dr. Jacobus, the Secretary, entitled

SOME FURTHER CONSIDERATIONS OF THE INTRAPELVIC BUT EXTRA-PERITONEAL METHOD OF DISPOSING OF THE PEDICLE AFTER SUPRAVAGINAL HYSTERECTOMY FOR FIBROID TUMORS, WITH REPORT OF CASES.¹

The discussion was postponed to a future meeting.

Stated Meeting, May 21st, 1895.

The President, BACHE McE. EMMET, M.D., in the Chair.

DR. EGBERT H. GRANDIN presented a specimen from a case of

RUPTURED ECTOPIC GESTATION.

He stated that he showed the specimen, not because it was in itself a rarity nowadays, but on account of the fact that the woman from whom it had been obtained presented symptoms out of the usual run in such cases. Whilst in his personal experience careful weighing of the symptomatology of ectopic gestation should enable the expert usually to reach a diagnosis in the stage of the affection precedent to rupture, instances were not at all uncommon where the absence of certain of the signs which we were in the habit of expecting so obscured the diagnosis as to lead to the postponement of operation until free hemorrhage had occurred. The woman from whom this specimen had been obtained had been seen in consultation with Dr. McFarlane, of Astoria, on the 5th of May. The woman was in the neighborhood of 40 years of age and had been sterile for many years. She gave a vague history suggestive of precedent pelvic trouble; her menstrual history for a number of years was that of irregularity. Two weeks prior to my seeing her she had had an attack simulating appendicitis. She gave me the usual history of early pregnancy—amenorrhea of nearly twelve weeks' duration, morning nausea, enlargement of the breasts, and increase in the size of the abdomen. About two weeks previously she had spotted for a few hours, and since that time had suffered from occasional bearing-down pain in the back and abdomen. I could secure no history of irregular hemorrhages or of colicky attacks of pain. On vaginal examination I determined an enlarged uterus, and induration in both vaginal fornices. On rectal examination the enlarged tube could be felt high up in the region of the cecum, and on the left the appendages were adhe-

¹ See original article, August number, p. 177.

rent but not markedly enlarged. The breasts were enlarged, but the follicles of Montgomery were not particularly prominent. I agreed with Dr. McFarlane that the woman was probably pregnant, and stated that there was a fair possibility that ectopic gestation existed. Still the symptomatology was not marked enough to warrant abdominal section, nor was the evidence of tubal trouble pronounced enough to call for operative interference in the presence of what might turn out to be uterine pregnancy. I counselled careful watching, such as daily rectal examination, and if the tube increased in size or the pains became colicky, or there appeared any evidence suggestive of rupture, I asked the doctor to notify me, so that we could at once open the abdomen. On the 11th instant the woman had an attack of abdominal pain, but it was transient in character and after its subsidence her well-being was not affected in the slightest. On the 15th the woman had a pulse of 85, was feeling well, and on local examination the doctor could detect no change in the tube and the uterus was larger than ten days previously. The diagnosis seemed to be established as uterine pregnancy. The following day, about 11 A.M., the patient suddenly collapsed, the pulse ran up to 160, and the mucous membrane of the lips became pale. The abdomen became tender on pressure, and the general condition was most critical. Dr. McFarlane administered a hypodermatic of morphia, ordered hot saline rectal injections, and telephoned for me. I made my arrangements as rapidly as possible, and, accompanied by Dr. Collyer, I reached the woman about 2 P.M., three hours after the development of the urgent symptoms. The woman had reacted in a measure, her pulse being 130. The facies was extremely pale and the abdomen was already tympanitic. Abdominal section was at once performed under ether anesthesia. On opening the cavity fluid blood shot out, followed by fresh and old clots. The right tube and ovary were at once freed from their adhesions and tied off. As the other appendages were diseased they were also ligated and removed. On the surface of the omentum were attached large clots, which were peeled off as far as possible. The cavity was emptied as far as feasible of clots, a quart of normal saline solution was poured in, and the abdomen was closed, except at its lower end where the gauze emerged, which I felt it would be safer to leave in to drain off the fluids which would not be absorbed. All this work was done with great rapidity, the woman being on the table not more than twenty minutes. She was placed in bed in as good a condition as she was in before anesthetization. Today, the fifth after the operation, she is convalescing.

This is the second case of ectopic gestation presenting anomalous symptoms on which I have operated for Dr. McFarlane, and both have recovered. A third case operated on for another gentleman and presenting similar symptoms also recov

ered. In these cases gradual hemorrhage had existed for days before the symptomatology was at all marked, and in the history of these three cases one of the classic signs of ectopic gestation—the irregular hemorrhages with the passage of decidua—was absent.

I desire to emphasize again the value of hot saline solution irrigation during operative procedures of this character, and the great reaction acquired and maintained by leaving a quantity of the same solution in the cavity.

Dr. Grandin asked the opinion of Dr. Boldt as to whether the operation could have been done as quickly and safely through the vagina, in view of the high location of the tumor, its adhesion to the cecum, and the active hemorrhage.

Dr. H. J. BOLDT said he must frankly admit that he had not yet been able to arrive at a definite conclusion on the point raised. He had successfully operated through the vagina in one case of the kind reported, while in another, owing to active hemorrhage, he had deemed it wiser to open the abdomen. He did not think he would be able to control the source of hemorrhage quickly enough through the vagina, but opened the abdomen and in two or three minutes had a ligature placed around the tube. All things considered, he thought Dr. Grandin had acted wisely in not operating through the vagina; that, had he so operated, he probably would have lost his patient.

Dr. JOSEPH E. JANVRIN, having been called upon for his experience, said that while he had operated frequently for ectopic pregnancy by opening the abdomen, he had never operated through the vagina unless the hemorrhage was fully under control. He certainly would not think of entering through the vagina.

Dr. H. J. BOLDT presented a variety of specimens, and said he would like to have the discussion directed more particularly to the cases of pelvic abscess treated by vaginal hysterectomy and to the method of operating in ectopic gestation.

A SERIES OF FOURTEEN VAGINAL HYSTERECTOMIES FOR PELVIC SUPPURATION.

All specimens presented similar pathological lesions. In all instances the uterus was immobile owing to pelveo-peritonitis. The abscesses were from two to four in number. The adnexa were affected on both sides. Clamps were always used to control hemorrhage. Recovery was uneventful in each instance.

Despite the opposition which this method is receiving from numerous sources, I am sure that it has come to stay. Not only this, but I notice that it is finding an increasing number of advocates from month to month. Neither do I see how it can be otherwise. It is simply marvellous how rapidly these patients usually recover. There are, of course, exceptions to this rule

also, the same as in everything. The main argument which is brought against it is the word "unsurgical." I assure you, gentlemen, that this is only in theory. I am perhaps an enthusiast, but I have reason to feel as I do. When I commenced this work I stood alone in this community. I was not only opposed, but was assured that I would soon give it up again. I have now, however, the gratification that others are beginning to coincide with me and indorsing the method almost as warmly as I do. Notably and the first among these is our distinguished colleague Dr. Polk. Permit me to say again to the opponents: "Try it a number of times and pass judgment upon it after gaining experience, and not upon theory."

It is applicable to most of the gynecological disorders for which we formerly did abdominal section, but no one should undertake it who is not ready to do the latter at a moment's notice, if a complication sets in which may necessitate this. The work requires greater skill and more endurance, as well as a greater degree of sensitiveness in touch, than the abdominal work, but these, it seems to me, are the greatest objections which can be brought against it from a practical standpoint.

I. SECONDARY OPERATION FOR RECURRENT CANCER OF THE BREAST.

The patient, aged 50 years, had been operated upon six months previously, and now presented herself with a nodule in the site of the scar. The operation consisted in taking away the entire pectoral structures to the bones on the affected side, severing the muscles at their origin and insertion, and cleaning out all soft parts surrounding the vessels in the axillary space. The parts removed were taken away in one piece according to the method advocated by Dr. Halstead, of Baltimore.

II. MALIGNANT DISEASE OF THE UTERUS COMPLICATED WITH PELVIC ABSCESS AND BILATERAL PYOSALPINX; RADICAL VAGINAL OPERATION.

The patient aged about 50 years. Owing to her inability to speak anything but Italian, she gave a rather indefinite history of her illness, pain in the lower abdomen and back being the only features elicited. It was determined upon examination that she had a very large uterus, softened in consistence, and that the pelvis was filled out by a semi-fluctuating tumor which upon exploratory puncture showed the presence of pus. The radical vaginal operation was performed with great difficulty. The interior of the uterus was found to be filled with a soft tumor about ten centimetres in diameter, which was shown, as per appended microscopical examination, to be a sarcoma. It was subsequently shown that the left ureter was injured during operation. The primary result from the vaginal operation was otherwise excellent.

Microscopical examination.—Sections made from the neoplasm received from Dr. Boldt showed that the growth, taken as a whole, was of the connective-tissue type. It was made up in part of irregularly interlacing bands of white fibrillated connective tissue and smooth muscle fibres. The major part of the growth was made up, however, of embryonic connective-tissue cells, some of which were spindle in shape while others were round in outline, and in both instances the cells were embedded in a homogeneous matrix. In some places the spindle cells were arranged in uniform bundles, as is common in typical spindle-celled sarcomata. In other instances the cellular elements were arranged in a more or less alveolar form, masses of the round and spindle cells being separated from each other by thin bands of fibrillated connective tissue. This alveolar arrangement was so well defined at some points that the section strongly resembled that of a carcinomatous growth. But a careful study of the cellular elements proved conclusively that they were of the connective-tissue and not of the epithelial class. This peculiar arrangement at places resembled very closely the condition found in chronic inflammation of the endometrium.

Another noticeable feature of the growth was the abundant vascular supply, which was in the form of dilated vessels resembling arterioles, the walls of which were thickened and in a state of hyaline transformation. There was not the abundant development of thin-walled capillaries and small hemorrhagic foci which are often found in rapidly growing sarcomatous growths.

The neoplasm should be classed as leiomyosarcoma of composite nature, as it is not made up wholly of any one predominating type of tissue, but is composed of various forms of the connective-tissue substance group, variously arranged as to quantity and distribution throughout the new formation of tissue.

III. CANCER OF THE UTERUS BEGINNING IN THE CERVICAL CANAL.

The specimen was removed per vaginam from a patient aged 40. Beyond the fact that there was extensive pelvo-peritonitis to such a degree that the operation was made exceedingly difficult, there was nothing noteworthy in the case.

IV. CANCER OF THE VAGINAL PORTION.

The vagina was infiltrated in its upper third, as were also the broad ligaments near the cervical attachment. The operation was begun with resection of the upper two thirds of the vagina, and then the lower portion of the resected vagina was closed with a continuous suture to prevent any detritus from coming into contact with the field of operation. The rest of the operation was performed in the usual way.

V. UTERUS REMOVED PER VAGINAM FOR RECURRENT ADENOMA.

Previous curettings had no effect upon the metrorrhagia, save to stay it temporarily.

VI. AND VII. TWO MYOFIBROMATOUS UTERI REMOVED PER VAGINAM.

In both cases pain in the pelvis, preventing the patients from attending to their usual duties, was the indication for operation. Both patients were out of bed within one week.

VIII. TUBAL GESTATION AFTER RUPTURE REMOVED PER VAGINAM.

The patient, aged 36, was seen in consultation, with the history that is common to extrauterine pregnancy. She was exceedingly anemic. A rapid and feeble pulse with slight elevation of temperature. Examination showed that the uterus was enlarged. The cul-de-sac was slightly pouched out into vagina, which was an evidence in this instance of a large effusion of free blood in the peritoneal cavity. Operation per vaginam about two hours subsequently. I decided to operate in this manner for two reasons: first, the abdominal parietes were very fat; and, second, I saw no reason why we should not be able to operate per vaginam as well in tubal gestation as for other conditions. The operation proved successful in every respect. The placenta is still shown adherent in the removed Fallopian tube. Gestation had advanced to the tenth week. I believe this to have been the first case of its kind premeditated to be operated upon per vaginam in this country. I subsequently read of Dührssen, of Berlin, having performed the operation under similar circumstances about two weeks prior to my operation.

IX. TUBAL GESTATION; TUBAL ABORTION.

The gestation had in this case also advanced to the tenth week. The patient's condition at the time of consultation was still quite favorable, and it was decided to transfer her to the hospital and operate at once, as in the previous case. Everything had been put in readiness for the procedure, but at the last moment the patient declined to be operated upon until the following morning. Upon my arrival I found the patient practically pulseless and completely blanched, indicating that a fresh hemorrhage had taken place during the night. The operation was commenced per vaginam, practically without an anesthetic owing to the unfavorable condition of the patient, and at the same time saline transfusion was commenced. It seemed evident upon cutting through the cul-de-sac, from the very large amount of fresh blood coming from the peritoneal cavity, that hemorrhage was still in progress, and I did not think that I would be able to control it sufficiently rapidly per vaginal operation as by an abdominal section. I therefore immediately

opened the abdomen and in about a minute I had the bleeding tube under control. The specimen shows very prettily the tubal abortion in progress. The embryo was found free in the peritoneal cavity. Although the patient's condition was better when taken off the table, owing to five pints of salt water having been infused subcutaneously, the improvement did not last, she dying from acute anemia thirty-six hours subsequently. The most interesting feature in this case lies in the fact that the patient did not have a single one of the characteristic features of tubal gestation. The diagnosis was based entirely upon the presence of a tumor beside the uterus and slight enlargement of this organ, extreme anemia with feeble pulse.

X. A LARGE CYSTIC OVARY REMOVED PER VAGINAM.

Pain was the indication for operation. The patient was out of bed within a week.

XI. OVARIAN ABSCESS; PYOSALPINX REMOVED PER ABDOMINAL SECTION.

The patient, aged 30, had had numerous attacks of pelvic peritonitis. Upon examination the uterus was found to the left of the median line and the whole pelvis was filled out by a pelvic exudation, most marked on the right side. All the pelvic organs being firmly matted together, I was led to believe that I could save the left adnexa, hence I preferred to open the abdomen. The intestines were tightly adherent to the pelvic organs, and the enucleation of the right adnexa proved a very difficult task. Although the left adnexa were adherent and the canal of the Fallopian tube not patent at the abdominal extremity, the fimbriae being turned into the tube, they were finally peeled out, the adhesion broken, and the canal made patent. A drainage tube was inserted. The ovarian abscess has no connection with the tubal abscess, and the abscess is multiple, the compartments being separated from each other by fibrous connective tissue.

XII. VAGINAL HYSTERECTOMY FOR PUERPERAL SEPSIS.

The specimen shows the usual pathological conditions found in such cases, and the result was as customary in such instances—namely, fatal.

XIII. LARGE OVARIAN TUMOR WITH UNIVERSAL ADHESIONS AND MALIGNANT DEGENERATION OF THE RETROPERITONEAL GLANDS.

The specimen was removed from a patient aged 48 years, although in appearance she was about 70. Convalescence is in progress.

XIV. A LARGE SARCOMA OF THE RECTI ABDOMINIS.

The tumor was removed from a patient aged 41 years. Upon

examination the case promised to be one in which a favorable result should be expected. Upon operation, however, it was found that the entire muscle from origin to insertion must be resected, and after removal of the tumor the approximation of the peritoneum became impossible from the fact that a large part of this, which had been firmly united to the neoplasm, had to be removed. The patient suddenly died, about twelve hours after operation, from heart failure.

SIX CASES OF VAGINAL HYSTERECTOMY FOR CHRONIC AND
RECURRENT PELVEO-PERITONITIS.

In three of the patients of whom the specimens are presented the tubes and ovaries had been removed by other operators without producing any beneficial effect. The symptoms of which the patients complained were various pelvic pains, back-ache, and sundry reflex aches and pains; in addition to these they had had, prior to the performance of the operation, severe dysmenorrhea.

With the specimens it is in place to say a word from the clinical side of these and similar cases. I will first consider the cases which had been operated upon previously. They come from the hands of three different operators, who, in my estimation, justly deserve the prominence and reputation which they have as leading gynecologists. I believe that specimens should not be taken as guides, as far as their pathological changes are concerned, in passing judgment as to the justifiability of a respective operation. In these instances I have no doubt but what the adnexa removed did not show sufficient lesions to warrant the operations, and yet I am sure that the complaints of the patients were such that any one into whose hands the patients would have fallen would have advised the same course which had been adopted by the operators in question, after ascertaining how futile other methods of treatment were in these special cases. I do not want to be understood as sanctioning every operation of this nature just because the patients are complaining of pain: to the contrary, I do not ever consider it justifiable to subject a woman to such an operation unless there are gross pathological changes which do not yield to other treatment; yet there are exceptions to this rule, and I believe that the physician in charge of any one case should be the one to decide the matter, provided he is a man of sufficient experience. I have touched upon this matter because the patients here alluded to were primarily in care of colleagues against whom the accusation has been made, in an off-hand way, that they removed adnexa without sufficient indication. Such remarks are not justifiable to the extent to which they are frequently made. The cases show, on the other hand, the desirability and the advantage of doing such operations per vaginam and of doing the work in

a radical manner—*i.e.*, removal of the uterus at the same time, instead of the adnexa alone.

Had this course been pursued the patients would have been spared a second operation, they would have been without an abdominal scar, and they would have made a more rapid convalescence in the first place.

I now enter upon the details of two cases, here presented as examples of the average :

CASE I.—Mrs. U., 31 years old, has had five children, the last fifteen months ago. Since then the patient has had pelveo-peritonitis, which prevented her from attending to her household duties, especially as she had during this time several acute exacerbations. Treatment which she received from other source was without benefit. Complicating the pelvic disease there was organic cardiac disease (mitral and aortic) of such extent that it was advisable to abstain from impregnation. It was this factor which influenced me in deciding upon a radical vaginal operation as much as the existing chronic metritis and pelveo-peritonitis. The convalescence was ideal, the patient leaving the hospital at the beginning of the fifth day after operation.

CASE II.—The specimen shows nicely the disadvantage of certain technical detail. It was procured from a patient, 24 years old, who had the adnexa removed per abdominal section six months prior to her seeking advice in my clinic. The pelvic pains were increased instead of being diminished after the operation. Bimannual examination revealed nothing definite beyond some perimetritic bands in the pelvis behind and to the sides of the uterus. Although reluctant to undertake any operative interference, owing to the lack of any more definite pathological lesion, as evident upon examination, I was induced to do so by a distinguished confrère who happened to be with me at the time. It was a good argument to use that inasmuch as the adnexa had already been removed the uterus was of no further use to the patient, and the operation would not be apt to have any but a beneficial effect. As will be seen by the specimen, the procedure was fully justifiable. In the first place, there are the braided silk ligatures, around which on either side an exudate had formed; then on the right side a large portion of the Fallopian tube was not removed, probably owing to the inflammatory product at the horn of the uterus, which is also well shown in the specimen. In addition the omentum was rolled up in a ball and adherent near the former site of the left ovary, thereby producing reflex symptoms.

DR. GEORGE M. EDEBOHLS had had an experience somewhat similar to that in Case 14. It occurred in his first case of ventral hernia, one of long standing, constituting an enormous enterocele. After he had cut through the integument covering the tumor and the hernial sac, he found that there was not room enough within the abdominal walls to accommodate the enor-

mons mass of intestines, etc., which had so long been out. He sewed the skin together over the tumor, leaving matters as before operation. The integument later gave way and the patient died. He had found a record of similar experiences on the part of a number of operators. It had taught him not to interfere in cases of large old hernia until he had assured himself that there was room enough within the abdomen to permit of the abdominal walls being brought together over the hernial contents. This could be done by reducing the hernia as far as possible, and grasping the margins of the hernial aperture with the fingers on either side to determine whether they could be brought together in the median line over the tumor. If this could not be done he declined to operate. Dr. Boldt's case had differed from his own in that he had been compelled to resect a portion of the muscular walls for sarcomatous growth, yet the two cases were similar in that the patients had died on account of inability to close the walls over the intestines.

DR. W. M. POLK said with regard to the cases of suppurative disease of the appendages, which he had seen Dr. Boldt operate upon, that the results obtained confirmed his former impressions of the value of the method employed. The question had been very appropriately raised as to the desirability of employing this particular procedure in cases in which a portion of the adnexa was to be retained. He must confess that, with the uterus in position, he was not convinced that the vaginal was always the better way for attacking these cases. The abdominal route had advantages, but at the same time the operation through the anterior cul-de-sac also had advantages, and for the present he must admit that he had not definitely settled in his own mind which was the best course to pursue in this class of cases. It was probable, however, that different cases would be found which were best met by different methods.

DR. F. HENROTIX, of Chicago (present by invitation), said he felt some diffidence in speaking upon the subject, but, since he was perhaps the first in this country to operate through the vagina for the removal of the uterus and adnexa in suppurative diseases, he would avail himself of the invitation and say a few words. He thought this method of operating, like all other procedures, required considerable discrimination in the selection of cases. It would not do to take too positive ground and operate upon everything per vaginam. If we did this we would do some bungling work at times and operate through this channel where we might better have opened the abdomen. Yet there was a large field for the method.

Vaginal hysterectomy for incurable disease affecting the adnexa of both sides was an operation which was bound to live. It possessed advantages over the abdominal procedure, and certainly was as uniformly successful. But it was a question in the minds of many men whether the treatment was applicable to

unilateral disease, or to bilateral disease where one side was less affected than the other. Where there were many adhesions it seemed to him conservative work was more difficult in operating through the vagina than in operating through the abdomen. The reason why judgment should be reserved was that we had much to learn regarding the manipulations necessary to the greatest success. He believed that Jacobs and some others had obtained such skill through extensive experience that they were able to do work through the vagina which those without much experience could only do with much less satisfaction. It had been three or four years since the speaker had first advocated removal of the uterus for bilateral periuterine suppuration. The ground which he then took was that which he held most emphatically to-day.

DR. A. P. DUDLEY said he did not consider the operation for removal of the diseased appendages through the vagina a new method. There were cases on record in the Woman's Hospital on which Dr. Thomas had operated by this method as far back as 1881. He and Dr. Goffe had attended some of the women at that time from whom Dr. Thomas had removed the appendages through the vagina for bilateral disease. It was not, therefore, a new operation, but simply a revival of an old one.

DR. P. F. CHAMBERS remarked that he had assisted Dr. Thomas remove the ovaries per vaginam ten or twelve years ago. There was a series of fifteen or twenty cases which he had so operated upon at that time and with very good results, yet he had given up the method and had since operated through the abdomen unless in exceptional cases.

DR. E. E. TULL had found that the space gained in incising the vagina for removal of tumors without doing hysterectomy was much greater when one carried the incision as much as an inch and a half below the cervix posteriorly. Through such an incision it was possible to introduce the whole hand and to remove a tumor over three inches in diameter, as he had done in a case only two weeks ago.

TWO CASES OF FIBROID OF THE UTERUS.

DR. W. M. POLK presented two specimens, one of large fibroid of the uterus removed through the vagina by morcellation, the other a somewhat larger tumor removed entire through the abdomen. The first case was interesting in the fact that notwithstanding the hardness and size of the tumor, about that of a gravid uterus in the fifth month, it was removed without great difficulty, although the operation lasted about an hour and forty minutes. The duration of the operation in the other case was shorter, being less than an hour, yet the patient had not done as well as the first, but both had recovered. The method of operating in the vaginal case was to attack the tumor by making spiral incisions into its interior, removing the pieces and thus

causing it to collapse, making it then easy to remove the outer parts. The operation was easier in shallow wide pelves than in deep narrow ones. Where the tumor was hard, and larger than one's head, as in his second case, it might be better to operate through the abdomen.

In reply to Dr. Dudley's interrogatory Dr. Polk said he ligated the uterine arteries. Clamps could be used, but in long operations they might be in the way or become dislodged.

DR. G. C. FREEBORN reported that the specimen presented by Dr. Currier April 2d was found on microscopical examination to have been a

TUBAL PREGNANCY.

Report of pathologist.—Specimen of ovary and tube presented by Dr. A. F. Currier at meeting of the Society held April 2d, 1895.

Macroscopic examination.—The specimen consists of an ovary and tube, with a portion of a cyst and masses of blood clot.

The ovary is of an elongated oval shape, measuring fifty-one by twenty five by twenty-four millimetres. The surface is smooth, except at the external end where it is slightly corrugated. The uterine third of the tube is firmly adherent to the ovary, the adhesions being very dense. The tube has been cut open longitudinally. The wall of the cyst is thin, its external surface rough from adhesions. The lumen of the uterine portion of the tube opens into the cavity of the cyst, which is apparently the dilated fimbriated end of the tube.

Microscopic examination.—The uterine end of the tube only shows hyperplasia. At the junction of the tube with the wall of the cyst, embedded in blood clot, there were found a considerable number of chorionic villi. The wall of the cyst consists of connective tissue, somewhat laminated, and infiltrated with blood.

Anatomical diagnosis.—Tubal pregnancy.

G. C. FREEBORN,

Pathologist.

He also presented two specimens as pathological curiosities. One was a constricted Fallopian tube with its lumen absolutely closed at the constricted point. The other was an ovary containing a small dermoid the size of a pea.

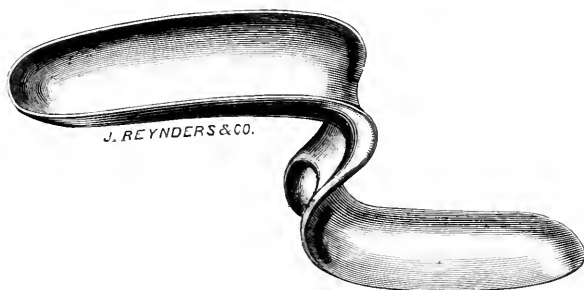
OVARIOTOMY UPON A PATIENT SIXTY-NINE YEARS OLD.

DR. AUGUSTIN H. GOELET presented a specimen of ovarian cyst which he had removed from a patient 69 years old. Its capacity was a gallon and a half, and there was degeneration of the walls, which were very thin in places. The history of the case is as follows:

Mrs. E., æt. 69 years, mother of six children, the last born

twenty-five years since; menopause occurred at 45 years. For the past three or four years she has been troubled with prolapsus, which during the last year became so annoying as to require attention. It was then discovered that there was a cyst to the right of the uterus which was crowding it down to the vulva. The size increased rather rapidly during the last few months prior to the operation. She had been a constant sufferer from chronic rheumatism and was not in a vigorous condition.

Her abdomen was constantly distended with gas, due to intestinal indigestion, before she was placed upon special diet preparatory to the operation. For this purpose she entered his sanatorium three weeks before, and the result at the time of the operation showed the advantage of careful preparation in these cases prior to operation. There was absolutely no distention of the intestines to interfere, consequently the operation was com-



Goelet's vaginal speculum.

pleted in a very short time, to the great advantage of the patient.

The operation was done May 18th. Previous to opening the abdomen the perineum was repaired. The time occupied by both operations was thirty minutes. The patient has not had an unfavorable symptom and the outlook is exceedingly favorable.

VAGINAL SPECULUM, OR PERINEAL RETRACTOR.

DR. AUGUSTIN H. GOELET showed his vaginal speculum, which is now being made in three sizes by J. Reynders & Co., two sizes for ordinary office work and one size having a short, broad blade for operating.

The special advantages of the speculum are, viz.:

1. That it may be used as a perineal retractor in both the dorsal and lateral postures, the shank joining the two blades being short so that the couch does not interfere with its use.

2. That it is self-retaining in both postures without the support of the hand.

3. That it is smaller and lighter and in every way more con-

venient than the ordinary Sims speculum, which it is intended to supersede.

4. That it may be used without the assistance of a nurse in both dorsal and lateral positions, and can be held with less fatigue than the Sims instrument.

A DOUBLE-CURRENT UTERINE IRRIGATOR FOR OPERATIVE WORK.

Presented by DR. AUGUSTIN H. GOELET.

The main advantages of this instrument are :

1. That it is much longer than the ordinary irrigator, being eight inches from the point to the opening for the outflow, consequently the outflow is discharged outside of the vagina.

2. The outer tube is conical, being larger at place of exit than at the other end which occupies the uterine canal. The point or uterine end is about the size of No. 21 F scale, and at the point of exit it measures about No. 28 F. This gradual widening of the outflow tube obviates stoppage.

3. The inner tube extends to the point, and side openings are provided for the inflow in case the opening at the end becomes blocked. This arrangement likewise permits more thorough irrigation of the cavity. Also, if the point should be directed against the entrance of the Fallopian tube of either side, escape of the fluid from the side openings prevents the liability of its entering the tube.

A larger and longer instrument is made after a similar design for irrigating the puerperal uterus.

DOUBLE-CURRENT UTERINE IRRIGATOR FOR OFFICE WORK.

Presented by DR. AUGUSTIN H. GOELET.

The main features of this instrument are :

1. That it is small enough to be used in office work without previous dilatation with the steel dilator. Its size is about No. 15 F scale, and the outer tube broadens toward the outflow opening, which obviates obstruction.

2. It is eight inches long, which permits the outflow to escape outside the vagina.

3. The inflow discharges from the point and through lateral openings as well.

4. A device at the lower end or handle for connection with a rheophore tip permits it to be used as an electrode with the negative pole when the canal is too narrow for it to enter readily.

DR. JOSEPH E. JANVRIK presented the following specimens with histories :

I. DOUBLE OVARIOTOMY FOR CYSTIC DEGENERATION OF BOTH OVARIES.

Miss R., aged 37 years, consulted me four years ago. I found

a small tumor of right ovary and recommended its removal. She decided to wait, and, as I learned when she next consulted me early in April of this year, had been having more or less treatment by electricity for nearly the entire four years. On examination in April it was found that the ovarian growth of the right side had increased to fully three times its size of four years prior date, being now the size of a small orange, and that a smaller growth had developed in the left ovary also. The patient had begun to suffer from pain and emaciation, and gladly accepted the proposition to enter my sanitarium and have the growths removed. April 22d celiotomy was performed. The cysts were strongly adherent to intestines, and the walls, being friable, were ruptured during their enucleation. The contents of some of the cysts, grumous in character, were disseminated into the pelvic cavity. Thorough flushing-out with hot water, however, removed this material, and an iodoform drain from lower end of wound was inserted and the abdomen closed. Gauze drained freely for twelve hours and was removed at end of twenty-four hours. Patient has made a rapid recovery.

One of the cysts of the right ovary shows that it was partially dermoid in character, there being a few undeveloped bony fragments attached to the inner wall.

II. VAGINAL HYSTERECTOMY, ADENO-CARCINOMA OF THE UTERUS.

Miss S. S. B., aged 60 years, consulted me April 22d, 1895, on account of a chronic endometritis which has existed for the past two years. The history of the case and the examination compelled me to suspect a malignant condition.

Curettage for the purpose of establishing a positive diagnosis was done at my sanitarium on April 24th. The scrapings, submitted to examination by Dr. William Vissman, of the New York Polyclinic, were found to be of an adeno-carcinomatous character.

Vaginal hysterectomy was done on May 2d and the patient has made an excellent recovery. I present the specimen simply to go on record, there being nothing of special interest in the case.

III. VAGINAL HYSTERECTOMY FOR REMOVAL OF UTERUS AND MODERATE-SIZED SUBPERITONEAL FIBROID.

Patient, Mrs. J. K., aged 39 years, has had four children and three miscarriages. During past three years has had severe menorrhagia and a good deal of pain. Had become anemic and unable to be much upon her feet or attend to her household duties. Her family physician, Dr. John F. Russell, brought her to me for examination April 29th (this year). I advised vaginal hysterectomy and performed the operation on May 7th. The

uterus, three and a half inches in depth, and having the tumor, about the size of a small lemon, growing from its left anterior surface just above the line of the internal os, was readily removed, and the specimen is presented entire. The presence of the fibroid did not in any way complicate the operation. The patient has made an excellent recovery.

CYST OF THE DISTAL END OF THE LEFT FALLOPIAN TUBE AND CYSTIC DEGENERATION OF THE RIGHT OVARY REMOVED ONE YEAR AFTER THE REMOVAL OF A PORTION OF THE LEFT FALLOPIAN TUBE AND SMALL CYSTS FROM THE RIGHT OVARY.

DR. RALPH WALDO presented the specimens with the following history:

Mrs. L. G., æt. 28, began to menstruate at 17 years of age, accompanied with severe pain in the back and abdomen, more marked in the right side. The flow was profuse, followed by severe prostration which was scarcely recovered from during the interval between her periods. At the age of 25 she was married, shortly after which she went to a hospital in London and, from her statement, was probably curetted. She was not benefited by this operation and in a short time came to New York, where she finally sought relief in one of the large hospitals, and the reports of that hospital state that she complained of severe pain in the right side (anteriorly and posteriorly) and difficulty in urination. February, 1894, celiotomy was performed and cystic ovaries, salpingitis, and uterine adhesions were found. A portion of the left tube and small cysts were removed. Was discharged from the hospital, unimproved, April 5th, 1894. She steadily grew worse, and March 9th, 1895, was admitted to Lebanon Hospital. She was scarcely able to walk and complained of severe pain in the lower part of the abdomen. Urination was very difficult and as a rule it was necessary to use a catheter. It was always extremely painful and at times associated with convulsions. On examination a large, fluctuating tumor was found in the left iliac region and extending to the median line. The tubes and ovaries were also found enlarged.

She was placed on tonic treatment and it was necessary to give morphine to relieve the pain. April 4th, 1895, under ether narcosis, celiotomy was performed, the abdomen being opened one-quarter of an inch to the left of the old scar, which was in the median line. There was a unilocular cyst, about six inches in diameter, formed at the distal end of the left Fallopian tube and firmly adherent to the left ovary, which was twice its normal size and the seat of chronic inflammation; also adherent to the bladder in front and intestines behind. The adhesions to the bladder and intestines were so dense that it was necessary to cut them. The right tube and ovary were very adherent. Several cysts were found in the right ovary, one of which was an inch in diameter.

Both tubes and ovaries were removed, the abdomen was irrigated with sterilized water and closed. Operation lasted forty-five minutes. Twelve hours after the operation urine was passed voluntarily. Convalescence has been uneventful, primary union having taken place in the abdominal wound.

These specimens which I present to you prove that in this instance, at any rate, the removal of a portion of a tube and cysts from an ovary that is the seat of cystic degeneration was not successful in curing the patient. Whether or not this is the case in other instances remains to be proved.

DR. A. H. GOELET read a paper on

THE TREATMENT OF METRITIS AND ENDOMETRITIS.¹

DR. W. R. PRYOR thought the paper was the most gratifying one which he had ever heard read by Dr. Goelet. Three years ago the author had had nothing to suggest except electricity. For one he was glad to welcome him into the surgical ranks in the treatment of diseases of women. He now had a speculum, he had an irrigator, and also a curette. When he should come to omit the use of strong antiseptics, and give the embryonic membrane a chance to grow after the surgical treatment, his success would be still greater. It was certainly most pleasing to have Dr. Goelet amongst the surgical gynecologists, for he was their most bitter opponent three years ago.

DR. H. N. VINEBERG took issue with the author regarding the treatment of specific acute endometritis, by which he supposed he meant acute gonorrheal endometritis. Dr. Vineberg thought better results were obtained when such cases were let alone than when any form of interference was instituted. It was well known that, as a rule, gonorrheal endometritis (or, to be more exact, endocervicitis) was rather benign, in so far that if it were let alone it would not go beyond the internal os. It was mostly in cases in which it had been interfered with in the acute stage that it extended into the uterine cavity and to the tubes and ovaries. After the acute stage had subsided and the chronic form had set in, if the endometrium was affected he thought curettage and drainage would then probably be the best mode of treatment. But in the acute stage such treatment would be faulty.

DR. E. L'H. MCGINNIS thought the author had covered the ground very well indeed. He had struck the keynote in saying that different kinds of treatment should be applied to the different varieties of cases. It did not seem to him advisable to lay down any cast-iron rule for the treatment of metritis or endometritis by any one method. The conditions varied so much that he thought the treatment should be varied too.

Dr. McGinnis said he had had no reason to complain of elec-

¹ See original article, p. 391.

tricity in the treatment of endometritis and of metritis, but he should certainly hesitate to use either the faradic or the galvanic current where there was gonorrheal inflammation, septic trouble, or pus. But one met constantly with cases which were free from sepsis and from gonorrheal inflammation, and in these he had obtained excellent results from the intrauterine use of electricity. For his own part he had preferred to use the positive pole to the negative of the galvanic battery in these cases. He had had little experience with faradism in the treatment of metritis and endometritis, having been so well satisfied with galvanism.

DR. GEORGE T. HARRISON would take issue with one of the critics, Dr. Vineberg. The method of treating acute gonorrheal infection of the uterus referred to in the paper was first suggested, he believed, by a member of this Society, Dr. Polk. At that time it was regarded as a very daring innovation. But Dr. Harrison believed that if one treated the endometritis during the early stage he might prevent his patient from having pyosalpinx. He thought Dr. Vineberg had been guilty of a contradiction in terms, for he had started out by speaking of the treatment of gonorrheal endometritis and then immediately stated that if it were let alone it would not get beyond the internal os. Of course if there was endometritis the inflammation had already passed the internal os. The disease having passed the internal os, Dr. Harrison was of opinion that active intervention was indicated in order to prevent it from spreading to the Fallopian tubes. All would admit that this was one of the most unsatisfactory forms of endometritis which we were called upon to treat. Curettage might be done and new membrane form under irrigation, yet the patient would not be found cured of her discharge. The only way to effect a cure in many instances was to use strong caustics, such as chloride of zinc.

Regarding ordinary forms of endometritis, the treatment employed by Dr. Goelet was that which he used and which he believed constituted the ordinary practice. He should suppose, however, that the author's treatment was more prolonged. He had not himself found it necessary to keep patients under observation so long or require them to come to his office every two or three days.

DR. LAPHORN SMITH, of Montreal (present by invitation), said he had used both methods of treatment of endometritis described in the paper. In hospital cases he employed rapid dilatation, curettage, and the application of pure carbolic acid and iodine, equal parts of each, to every part of the endometrium, after which he packed the uterus with gauze. If, however, the patient came to his office and was opposed to operations he used intrauterine galvanism. After an experience of five or six years with these two methods of treatment, employed in about an equal number of cases, he must say that the results from

electricity had been just about as good as those from operative treatment. Yet he preferred operative treatment, for it was quick, requiring only about half an hour, whereas the electrical treatment required half a dozen or more séances and was attended by some little trouble. He wished to corroborate Dr. Goelet's statement as to the necessity for carrying out the electrical treatment in the manner suggested by Apostoli, with strict antisepsis. A good many had tried the treatment and had abandoned it, but they had failed to carry out all the anti-septic precautions. Dr. Smith said he never applied the two methods of treatment in the same case.

DR. A. P. DUDLEY said there were some points in the paper with which he must take issue. They did not relate to electrical treatment exactly. He did not propose to discuss that part of the subject, for the reason that he thought it was dying a natural death and he did not wish to help resuscitate it. But there were some points in the surgical treatment with which he could not agree. As he had said a good many times before, he believed that simple non-specific catarrhal endometritis was due to passive congestion in the body of the uterus. Here the simplest form of treatment applied to the lining membrane would probably prove sufficient after the cause of the catarrhal condition had been removed. But when from lack of treatment such a condition had passed into the subacute stage we usually found the lining membrane thickened and soft, constituting what was called a fungous state. It was not an endometritis in the true sense of the word, it was not an inflammation, but a change in the mucous membrane induced by neglect of passive congestion. For such a condition he would certainly advocate surgical treatment—that is, dilatation and curettage. He also used carbolic acid, finding it the most efficient and safest application. It did not burn deep enough to destroy the submucous tissue and prevent restoration of healthy mucous membrane. He did not pack the uterus more than once. In his opinion it was not good practice to make traction upon the organ and pack it every other day. He had done this a few times and had found that the gauze soon became an irritant, so that there was a discharge from the uterus, not alone of mucus, but of mucus mixed with blood. He had even seen salpingitis result from such meddling treatment.

Regarding senile cases, according to his own observation the past twenty years the uterus was usually hard and measured from three to three and a half and even four inches in depth. As long as the diseased state remained in the uterus congestion would continue and the organ would fail to atrophy and return to the senile size. For that reason he invariably dilated the uterus, usually with the laminaria tent, which had been carefully prepared by dipping it into carbolic acid, drying quickly, then dipping into carbolized vaseline so as not to injure the uterine

tissue. After the dilatation the cavity was thoroughly curetted, was washed out once, and then let alone. He had yet to see any bad results from such work, and he had yet to find it necessary to apply electricity to any of those cases.

Dr. H. J. BOLDT asked Dr. Goelet whether he used packing with iodoform gauze for the purpose of drainage. Dr. Goelet having replied in the affirmative, Dr. Boldt said this was an error which had crept widely into the profession; that packing the uterus with iodoform gauze after curetting did not drain it at all. If one would watch such cases, placing a piece of cotton with tannin (the test tampon of Schultze) in front of the cervix after packing the cavity of the uterus, he would find that there was no drainage at all. What iodoform gauze accomplished was simply to keep the canal patent. It enlarged the uterus slightly. There was a secretion forming under the gauze which made it appear as though the secretion was exuding from the cavity by drainage through the gauze. As a matter of fact, however, the gauze did not drain the uterus.

Dr. GOELET closed the discussion. To mention the last point first, he would ask how it happened, if the gauze did not drain the uterus, that the packing in the vagina was found saturated. The term packing was a misnomer. He did not advocate tight packing, except in certain conditions to stimulate contraction of the uterus.

Dr. BOLDT replied that if the gauze in the vagina became wet it was from the vaginal secretions and not from the uterine secretions.

Dr. GOELET.—The saturation of the gauze is not caused wholly by vaginal secretion, for it is frequently found saturated with blood which oozes from the uterus.

Continuing, Dr. Goelet said the conclusions stated in his paper had been reached after considerable experience with the treatment of metritis and endometritis. He would say that electricity would unquestionably cure chronic endometritis, but curettage and irrigation would cure it much more quickly, and for that reason he had advocated the latter. He had never been opposed to any operative measure when it was the best method to be adopted. He had written a great deal about electricity because it was a new, an interesting subject, but he had operated before he began the use of electricity, and continued to operate to-day.

Regarding the let alone plan in gonorrheal endometritis, advocated by one speaker, he would ask the gentleman if he disposed of his cases of gonorrhea in the male in the same way.

Dr. Goelet had hoped there would be more discussion upon the after-treatment of endometritis or the treatment following operation. This was very necessary, and the cases in which it had been necessary to repeat the operation were those in which, according to his observation, this precaution had been neglected.

The lining membrane of the uterus was very sensitive, and pent-up mucus or shreds of membrane, and even blood clots, would cause irritation and rekindle the inflammation. Washing out the cavity gave relief and should be repeated from time to time until the mucous membrane became healthy and mucus or shreds ceased to collect. We should not, then, neglect our cases after curettage, but should follow them up until a complete cure had been obtained.

Regarding the use of gauze, in some cases it was not necessary to reapply it, in some it was, while there were other cases in which it need not be used at all.

Dr. Dudley had said that he did not use electricity but he did use carbolic acid. Dr. Goelet would ask, why not use galvanism or zinc electrolysis, which were better and safer caustics and would cure much more quickly? As to electricity dying a natural death, the speaker knew of no better agent for relieving congestion, which Dr. Dudley had said maintained the endometritis, than the high-tension faradic current. He found it more and more useful every day, and did not doubt but what Dr. Dudley would change his opinion of the value of the faradic current if he would only try it in appropriate cases.

Official Transactions.

ARTHUR M. JACOBUS,
Recording Secretary.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Wednesday, March 6th, 1895.

The President, F. H. CHAMPNEYS, M.A., M.D., in the Chair.

DR. J. INGLIS PARSONS read a paper on

THE DISINTEGRATION OF ORGANIC TISSUE BY HIGH-TENSION CURRENTS.

These investigations were undertaken to ascertain the capabilities of electricity as a destructive agent in the treatment of malignant disease. He had found from former investigations that the constant current was only effective at the poles for this purpose, even with powerful currents. By using powerful interrupted voltaic currents a much greater area was injured, apparently by the force of the impact.

He had some success with this method, but the results varied, some cases being more resistant than others. If the strength of the voltaic current was raised to meet this, too much heat and caustic action were developed. It became necessary to investi-

gate further. Having noticed the disruptive effects produced by currents of high electromotive force, it was decided to have a transformer made to a special design. By this means quantity is turned into pressure, heat and caustic action are reduced to insignificance, while the destructive action is enormously increased. The transformer is capable of working up to one hundred and fifty thousand volts, and can be graduated from zero to the pressure required, within certain limits.

The resistance of the transformer is kept low, so that as large a proportion of energy as possible may be expended on the organic tissue when in short circuit. The primary coil is supplied by six accumulators. A manual rheotome is used, so that the operator has perfect control over his instrument.

Freshly-killed beef was chosen as the best organic tissue upon which to try the discharges, because its structure would easily show any alterations that might take place, and it could be obtained in sufficient mass to allow the current to diffuse.

Great difficulty was experienced in cutting sections from the beef after the current had passed through it. Even when frozen or mounted in paraffin it crumbled away into débris.

By lowering the pressure in the transformer some sections were obtained, and the muscular fibres were found to be broken up throughout the path of the current. (This was well illustrated by magic-lantern slides and microphotographs.) The destruction was found to extend throughout the path of the current, and was not confined to the poles like the constant current. The sections showed no evidence of heat or caustic action.

Some experiments were then tried with an air gap in the circuit, instead of connecting the beef direct to the transformer. The destruction was nothing like so great, probably on account of the high resistance of the air gap.

The diffusion of the current was then worked out as nearly as possible by cutting sections from different parts of a thick piece of beef after the passage of the electricity. The area broken up was found to correspond very nearly to the shape of an elliptic spindle.

When the poles are not always placed at the same distance apart it is necessary to know the proportion between solid elliptic spindles of different sizes. With the poles six inches apart the solid contents are twenty-seven times greater than at two inches, consequently a corresponding increase or decrease must be made in the pressure of the current or the number of interruptions, according as the needle points are moved further apart or brought nearer together.

Finally, a Leyden jar acting as a condenser was then introduced into the circuit. The character of the discharge is altered. It takes place with far greater rapidity. The maximum pressure is lowered to about twenty thousand volts, with a corre-

sponding increase in quantity. The sections taken showed an utter destruction of the beef. Apparently very little diffusion occurred; the discharge made only a narrow lane from one pole to the other.

DR. LEWIS JONES said that he had made similar experiments on the disintegration of tissue by means of high-tension discharges, using a transformer. He was astonished that Dr. Parsons should speak of the destruction of tissue as being produced by the "force of impact," such an expression being vague and meaningless. The destruction of the flesh was due simply to the heat produced by the discharge. Indeed, there was no other possible way in which the electrical energy could expend itself on such a conductor as a piece of flesh. In his (Dr. Lewis Jones') experiments the piece of meat quickly heated, and if the operation was continued it soon emitted steam and smoke and finally flame. To say that there was no heat because a thin platinum wire was not heated by the coil discharge was most misleading. Of course, under the conditions of the experiments shown, the platinum wire could not possibly have been heated appreciably. The destruction of tissue was much greater round the poles than in the interpolar area, and this point should have been mentioned more clearly by Dr. Parsons.

DR. HORROCKS said that if it could be shown that living cells, either normal or pathogenic, could be broken up by an electric current, then it was conceivable that this method had a future before it. It had long been known that a simple fracture of a bone united aseptically. Similarly, if one could break up the tissue of, say, a tumor or an inflammatory mass by electrical currents, one might succeed in setting up changes which would result in the absorption of the tumor or the exudation. He (Dr. Horrocks) drew attention to the kind of current employed—namely, the faradic or induced. He could not quite understand how the author had arrived at the conclusion that none of the effects produced were the result of heat. Certainly the sparks shown to-night were very much like lightning flashes, and it was a well-known observation that in death from lightning there was evidence of the effect of heat, especially at the entrance and exit of the electrical fluid.

DR. ROUGH said that Dr. Parsons had shown how completely the interrupted current could destroy tissues. He asked whether Dr. Parsons was acquainted with the experiments of Sir Benjamin Richardson, which showed that simple non-electrical vibrations changed and reconstructed tissues in various ways. The experiments alluded to were performed on blood taken from the finger, and the products after the shock examined under the microscope. We should not forget that the action of the interrupted current might be influenced in some instances by a neighboring vibratory wave and the results be modified.

REVIEWS.

THE DISEASES AND DEFORMITIES OF THE FETUS. An Attempt towards a System of Antenatal Pathology. By J. W. BALLANTYNE, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Gynecology, and on Diseases of Infancy and Childhood, School of Medicine, Edinburgh. Volume II. Congenital Diseases of the Subcutaneous Tissue and Skin. With plates. Pp. 245. Edinburgh: Oliver & Boyd, 1895.

The second volume of Dr. Ballantyne's series on "The Diseases and Deformities of the Fetus" proves to be all that the high standard of the first number had led us to expect. It is as evidently the work of a scholar as of an enthusiastic and careful student. The entire work shows extremely systematic arrangement as well as thorough treatment. The bibliographical indexes are wonderfully complete and greatly enhance its value. A prominent and instructive feature of the work is the author's excellent classification of congenital cutaneous diseases.

In the words of the author, this volume considers "the idiopathic diseases of the subcutaneous tissue, and such of those of the skin as have hyperkeratosis or keratolysis as their leading morbid change." The writer has not confined himself strictly, as might be imagined from the title of the series, to antenatal diseases, but has very wisely included the neonatal maladies which are so closely associated. The chapters on sclerema neonatorum and the various forms of ichthyosis and keratolysis are particularly exhaustive. The author promises future consideration of congenital diseases of the hairs, sebaceous and sudoriparous glands, and nails, pigmentary anomalies and congenital skin affections, among which may be mentioned absence of the skin and cutaneous ulcers; and later cutaneous neoplasms and transmitted skin affections will be treated.

The present number of the series is characterized by the same qualities which make *Teratologia*, Dr. Ballantyne's journal of antenatal pathology, so valuable a work. It certainly deserves to meet with the same cordial reception which was accorded to its predecessor.

H. D.

THE ART OF MASSAGE: ITS PHYSIOLOGICAL EFFECTS AND THERAPEUTIC APPLICATIONS. By J. H. KELLOGG, M.D. With plates. Pp. 275. Battle Creek, Mich.: Modern Medicine Publishing Co., 1895.

The work opens with a brief and interesting history of massage. A short chapter is then devoted to the necessity of correct anatomical knowledge, and is followed by a discussion of the

physiological effects of massage, while its therapeutical applications are briefly treated. Under the headings of "The Procedures of Massage" and "Massage of Special Regions" the technique of the subject is minutely described. The author lays particular stress upon his classification of the movements employed. In other chapters attention is given to mechanical Swedish movements, the use of the dynamometer, and the "rest cure." A summary of the rules of massage, tables relating to the muscular system, and an appendix of cases treated by the author complete the book. The typographical work is excellent, as are also the many half-tone engravings from photographs, illustrating the methods of treatment. The entire volume gives evidence of careful and systematic preparation.

H. D.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Volume VII. For 1894. Pp. 332. Published by the Association, 1895.

This volume of Transactions is almost equally divided, numerically, between gynecological and surgical subjects. Among the gynecological papers read at the sixth annual meeting of the Association at Charleston are: "Gonorrhea in Women," by Holmes; "Operation for Complete Perineal Laceration," by Price; "The History of Vaginal Hysterectomy," by Engelmann; "Symphyseotomy," by Baldy; and "A Report of Four Illustrative Abdominal Sections," by McMurtry. The volume contains also a most interesting article, "Reminiscences of Dr. J. Marion Sims in Paris," by Souchon.

H. D.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS for the year 1894. Pp. 510. Philadelphia: Wm. J. Dornan, 1895.

The number for 1894 is of unusual size and maintains the standard set by its predecessors in binding, printing, and paper, as well as in its contents. Very full abstracts of the contents of this interesting volume of Transactions have appeared in the numbers of this JOURNAL from October, 1894, to January, 1895, inclusive, while several of the papers have been published there in full.

H. D.

ABSTRACTS.

1. PERDRIZET: INDICATIONS FOR AMPUTATION OF THE CERVIX OTHER THAN CANCER (*Archives de Tocologie et de Gynécologie*, August and September, 1894).—After a short historical survey of the subject of cervical amputation and a detailed description of the various operations in use, the author discusses the indications.

Stenosis is the first, and constitutes a reason for operation when dilatation and stomatoplasty have failed to give relief and the pains of dysmenorrhea are so acute as to render it probable that mucus or blood will be retained in the uterine. Stenosis unaccompanied by pain but causing sterility is also an indication for the operation.

Chronic and painful cervical endometritis.—This, as a rule, obstinately resists treatment by dilatation, curetting, cauterization, ignipuncture, and even opening the glandular cul-de-sac by Doléris' system of *harrowing*. At best these give a temporary relief only, and amputation of the cervix is preferable.

In the case of *ulcerations*, syphilitic ulcers must be excluded, as they yield to specific treatment; and tuberculous ulcers are also not to be operated upon in this manner. The only ulcerations not complicating metritis for which it is advisable to remove the cervix are those caused by lacerations due to labor, abortion, or surgical intervention, and no operation should be attempted until a considerable time has elapsed since the injury, unless indeed it be of sufficient extent to menace the life of the patient.

Uterine displacements.—The operations for this class of diseases do not consist of a simple amputation, but of a total or partial amputation of the cervix, followed by suture of the stump to the adjacent walls in order to maintain the uterus in correct position. In cases of anteversion Sims' operation is the one to be adopted, and consists of a deep freshening of the surface of the inferior lip of the cervix, which is then sutured to a freshened surface on the anterior wall of the vagina, the uterus having previously been replaced in proper position.

In retrodeviations various methods have been used. Säger detaches the vaginal mucous membrane at the point of insertion upon the cervix and fixes it a little above the isthmus. Richelet-Byford freshens the anterior lip and fastens it to the posterior vaginal wall. In Nicoletis' operation supravaginal amputation is performed and both vaginal walls are fastened to the anterior portion of the anterior lip. The uterine orifice is fixed to the vaginal wall and the sutures made around it, thus securing its permeability.

In cases of pseudo-prolapsus or intravaginal hypertrophy of the cervix biconical amputation is preferable to other procedures, and consists of transverse incision of the cervix up to its vaginal insertion, the formation of two wedge-shaped flaps upon each lip of the cervix, and separate suture of each lip.

Incomplete utero vaginal prolapse, which is almost invariably accompanied by retrodeviation, is to be operated upon by Richelet-Byford or Nicoletis' method, treating it as though it were simply a posterior displacement.

In complete prolapsus intra- or supravaginal amputation, according to the degree of prolapsus, is absolutely indicated.

Every operation should be preceded by curetting and accompanied by strict antisepsis.

Contraindications.—No operation should be attempted during a period of acute inflammation of the cervix, and it should be ascertained that there is no coexisting lesion to complicate the proceedings, such as serous, purulent, or bloody exudations from the tubes or ovaries. All acute inflammations of the uterus and appendages contraindicate amputation, as do pelvic peritonitis or cellulitis. Cervical metritis which occurs in *repeated* and successive attacks of acute form, with or without metritis of the body of the uterus and unaccompanied by disease of the appendages and peritoneum, is the only acute affection which does not contraindicate amputation.

Acute vulvo-vaginal affections should be cured before the operation is attempted. A bad general condition of health, and even the slightest febrile state, are contraindications, as is the existence of diabetes, which is so frequently masked by an appearance of perfect health that the physician should never omit a careful examination of the urine before deciding upon operation.

Summary in conclusion.—1. Amputation of the cervix uteri is, as a rule, a benign operation, necessitating the use of an anesthetic, and rarely followed by any complication where strict asepsis is observed.

2. Amputation constitutes the true cure for cervical disease in a relatively short period of time.

3. It also, either directly or indirectly, is of great benefit to cervical endometritis, anteversion, retroversion, and prolapsus of the uterus.

4. In simple or complicated lacerations produced by labor or obstetrico-surgical intervention it is strongly indicated.

5. The best methods of amputation are those of Simon-Marcwald (two flaps to each lip of the cervix), or Schröder's (one flap to each lip), and that of Huguier.

6. Cervical amputation done under the above conditions has no bad effect upon subsequent labors and is not followed by post-operative complications.

7. Amputation of the cervix should always be preceded by surgical curetting.

A. R. S.

2. HOTMAN DE VILLIERS: TWO CASES OF SALPINGO-OVARITIS TREATED AND CURED BY MEANS OF VAGINAL TAMPONS WITH GLYCERIN (*Archives de Tocologie et de Gynécologie*, August, 1891).—The first case was that of a young unmarried working girl of 19 years. Menstruation had always been regular, there was no history of leucorrhea, and her general health had always been excellent.

A year previous to her first visit in July she was subjected to a sudden fright during her menstrual period; the menses

stopped, and abdominal pains of some severity continued for several days and then ceased for two days upon a reappearance of the flow. In October genital pruritus set in and became so intolerable that she went to a hospital, where an interne, without making any previous examination, introduced a sound into the uterus. Intense abdominal pains, at first general and finally localized in the left iliac fossa, followed this procedure, obliging the patient at the end of a week to take to her bed. During five months of suffering the only treatment applied consisted of laudanum plasters upon the abdomen and hot vaginal injections of a bichloride solution.

In the month of April of this year the patient came to the Hôtel-Dieu. Upon examination de Villiers found the abdomen relaxed, but pressure produced such intense pain in the left iliac fossa that nothing could be ascertained from external palpation. The vulva was normal, the oval-shaped hymen intact. Uterus anteverted and movable. Cervix small and conical. The appendages of the right side normal; on the left side the enlarged and painful ovary was found in Douglas' cul-de-sac, and the hardened tube was of the size of the little finger, adherent to the ovary, but apparently not bound down to neighboring organs. Diagnosis was made of chronic parenchymatous salpingo-ovaritis due to traumatism by means of a septic instrument. Treatment for two months consisted of rest, bichloride injections, the introduction of small pledgets of iodoform or salicylic gauze, and revulsive applications to the abdomen over the seat of pain, but there was very little improvement. The patient left the hospital in despair and consulted de Villiers in his office. He succeeded in introducing a small bivalve speculum, and found that there was a thickened, yellowish exudation from the cervix. Microscopic examination excluded all suspicion of gonorrhea. Remembering the negative results of previous treatment, he decided to introduce a large amount of glycerin into the vagina, securing its retention by means of tampons of absorbent cotton, to be withdrawn after forty-eight hours. This was done every two days, and by the fourth treatment there was already marked improvement. The pains in the left iliac fossa were lessened, and pressure caused scarcely any pain. After the sixth treatment it was found that the ovary and tube were diminished in size, and after the eighth treatment they were normal. A complete cure was effected.

The second case was that of a woman of 26 years, a dancer in the Olympia Theatre, in whom there was double salpingo-ovaritis dating from a miscarriage four years previously. On the right side there was parenchymatous salpingo-ovaritis, on the left there was suppurative salpingitis, but it was not possible to ascertain whether the ovary was affected. All methods of treatment having been tried without effect, and the patient absolutely refusing to submit to surgical measures, the glycerin and ab-

sorbent cotton treatment was resorted to. The first treatment in February was badly tolerated. At the second séance withdrawal of the third tampon was followed by a flow of pus, and the tumor on the left side was found to have completely disappeared, leaving the ovary free to the touch.

Treatment was continued every two days and suspended early in May, as all pain had disappeared and no pus was found on the tampons, but vaginal injections of carbolic and thymol solutions were administered. On the 20th of June examination showed that the tube and ovary of the right side were normal; on the left side the tube was felt to be hard and unequal to the touch, the ovary of normal size and no longer sensitive.

In the first case surgical intervention was not to be thought of, but in the second an operation was clearly indicated and would certainly have been attempted had the patient consented. The treatment is simple and is certainly a valuable resource, both in cases where surgical interference is refused and in those where the patient is unable to give up her daily avocations, although complete rest in bed would of course accelerate the good results.

In extremely acute cases, or during a period of exacerbation of lesions of the uterus and appendages, it is not indicated, nor in affections where there is any obstruction to the evacuation of fluid. Strict utero-vaginal antisepsis should of course be observed.

A. R. S.

3. LABADIE-LAGRAVE AND BASSET: DIAGNOSIS AND MEDICAL TREATMENT OF SALPINGITIS (*La Semaine médicale*, January 9th, 1895).—The diagnosis is easy and certain when vaginal palpation shows distinctly rounded elevations of the tube, when a tumor can be distinguished which is attached to a cornu of the uterus by a pedicle or separated from it by an appreciable groove. In difficult cases we may apply Apostoli's method of diagnosis:

1. All painful symptoms of the appendages which are exaggerated by galvanization of the uterus with thirty to fifty milampères, but which disappear upon faradization, are of nervous or hysterical origin.

2. In any uterus which does not bear fifty milampères at its periphery inflammatory lesions are to be suspected.

3. Every uterus which shows no reaction during and particularly after the application of one hundred to one hundred and fifty milampères has a healthy periphery.

4. Every uterus whose intolerance, at first excessive (not supporting twenty or thirty milampères), increases and is accompanied by a rise of temperature, is one whose periphery is the seat of lesions not amenable to conservative surgery.

In the diagnosis of salpingitis the following must be differentiated: fibromata of the posterior face of the uterus, ovarian

cysts, retroflexion, prolapse of the appendages, lumbo-abdominal neuralgia, ovarian neuralgia of hysterical origin, phlegmons of the broad ligament, uterine lymphangitis, adenophlegmon, tubal pregnancy, encysted retrouterine hematocoele, and malformations of the uterus.

In the treatment of catarrhal salpingitis with oöphoritis, of hydrosalpinx, and of pyosalpinx, even surrounded by adhesions, we obtain rapid disappearance of the symptoms of pain and tubal swelling by dilatation followed by curettage and prolonged drainage. The most essential feature is large dilatation continued until menstruation occurs. The curettage should be particularly thorough at the cornua near the openings of the tubes.

In old cases of salpingo oöphoritis, with very flexuous tubes prolapsed and adherent, our treatment causes disappearance of the pains, a marked diminution of the tumor, and an improvement of the general condition, so that a relative cure results though the indurated tube and ovary never regain their normal condition.

The majority of our patients have been seen either three, six, or nine months after treatment; the cure had been maintained.

We believe that dilatation alone or with curettage can cause evacuation of a tubal cyst. By what means do the dilatation, curettage, and drainage act? According to Dentu dilatation softens the uterine tissue and relaxes the internal orifice of the tubes. Walton thinks that while it leads to evacuation of the cyst by enlarging this orifice it causes the rupture of certain fibres, hence relieves congestion of the broad ligaments and ovaries, and stretching the nerves, hence cessation of spasms and pains. Bonnaire attributes to a rubber drain with which he maintained the dilatation a trophic action on the uterus and appendages. We believe in this enervative process, which we hope to obtain with the more antiseptic drain of iodoform gauze.

H. D.

4. LVOW, Y.: LESIONS OF THE FEMALE GENITALIA PRODUCED DURING COITUS (*Nouvelles Archives d'Obstétrique et de Gynécologie*, December, 1894).—This subject is of importance from a medico-legal as well as a gynecological standpoint.

The hymen may remain intact after coitus either because the male organ has not penetrated the vagina, or when the solidity of the hymen or narrowness of the vagina from imperfect development prevents intromission, or in cases which present a very elastic hymen with a large opening. Usually, during the first union this organ is ruptured by a single blow, the line of tear being single, double, or radiating from the opening; more rarely the hymen is torn away at its attached margin and remains hanging by one side. In violent intercourse, especially when the hymen is annular and thick, the tear may extend into the

vaginal wall. The hymen is not merely a fold of mucous membrane, but contains muscular tissue and may be well supplied with blood vessels. As a rule the hemorrhage following its rupture is slight and soon ceases; if serious the bleeding vessels should be tied; if parenchymatous a tampon is effectual. The tear usually heals in two or three days, but acute inflammation may arise from infection of the wound or too frequent coitus.

Laceration may occur in the region between the clitoris and the meatus urinarius, or severe hemorrhage may be caused by rupture of the turgid blood vessels of the neck of the uterus. Improper formation of the hymen, malposition or diminutive size of the genital opening, and abnormal position or violence during coitus may lead to recto-vaginal fistula.

The author believes that vesico-vaginal fistula due to coitus is almost an anatomical impossibility, even in a short vagina, as the penis never enters entirely when in the natural position. A distended bladder might be thought to aid in the production of such a fistula, but it presses the uterus backward and upward, thus lengthening the vagina and stretching its anterior arch, and the only possibility is the detachment of the anterior fornix from the uterus. Lesions of the upper part of the vagina do not occur if it is healthy and of normal elasticity and extensibility, despite the relative size of male and female organs and the violence of intercourse, except occasionally when in an unnatural position. In the author's two cases the pathological condition was furnished in one by atrophy associated with the climacteric, in the other by chronic atrophic parametritis.

Intercourse by the urethra occurs only in cases of atresia hymenalis when it is *locus minoris resistentiæ*. Usually in this case the urethra is slowly dilated by persistent efforts, but rapid dilatation may result in its rupture.

H. D.

5. PINARD, A.: SYMPHYSEOTOMY AT THE BAUDELLOCQUE CLINIC DURING 1894 (*Annales de Gynécologie et d'Obstétrique*, January, 1895).—Pinard reports twenty-two cases of contracted pelvis in which symphyseotomy was performed at the Baudellocque Clinic during the year ending December 7th, 1894, adhering strictly to the principles which had been followed in 1893. These were, briefly:

1. Abandonment of induced labor.
2. No application of forceps where bony obstruction exists (either in the superior strait, the cavity, or the inferior strait).
3. Never perform embryotomy on a living child.
4. Temporary enlargement of the pelvis (by symphyseotomy, pubiotomy, ischio-pubiotomy, coccygotomy) in all cases where bony obstruction is not overcome by the contractions and in which the head is well placed and calculations show that pelvic section will permit it to pass.

5. Cesarean section with utero-ovarian amputation in cases of absolute narrowness.

Of the twenty-two cases nineteen mothers and twenty infants were saved. Of the three mothers who were lost, one died from intestinal obstruction and two from septicemia contracted before entering the clinic. The two children who died were killed, one by fracture of the skull produced by the forceps of a physician who attended the mother before she was admitted to the clinic, the other by asphyxia due to compression of the cord. In this case the mother said nothing of the occurrence of her pains, dilatation was accidentally discovered to be complete, and the child died before symphyseotomy could be performed.

Among the nineteen mothers who recovered there was no accident or complication attending the operation and no serious hemorrhage. At the time of writing all have returned to their former avocations in as good condition as before symphyseotomy as regards both standing and walking. In none has the solidity of the pelvis been injured, although three have since become pregnant. In one case this operation was performed upon a woman for the second time, but with the same favorable results. It was practised once each for brow and face presentations, twice for breech, and once for a shoulder presentation which could not be changed into one of the vertex during pregnancy.

One question remains for study: Should one divide the pelvis when, the child still living, the woman is already infected, or should one rather in this case perform Cesarean section followed by amputation of the uterus and ovaries? This the future must answer.

H. D.

6. STIÉBER: TUBAL PREGNANCY [OF FOURTEEN MONTHS (*Archives médicales de Toulouse*, February 1st, 1895).—The patient was married in November, 1891. Menstruation, previously regular, ceased in May, 1892, and later her breasts and abdomen showed the usual signs of pregnancy. In December, 1892, pains in the head and abdomen; breasts became hard, painful, and secreted a quantity of milk. This lasted eight days, then fetal movements had ceased. In February, 1893, painful uterine contractions with a small flow of blood and membranes and secretion of milk. The abdomen diminished in size and gradually became hard. In March the menses reappeared, accompanied by pains in the loins and thighs.

On August 20th the patient, a primipara aged 29, entered the clinic. Examination disclosed a median ovoid tumor the size of a fetal head at term, tender, irregular, and of varying consistence, one portion hard, another elastic. Moving the cervix laterally did not disturb the tumor; pressing the latter forward moved the uterus also.

Median laparotomy by Jeannel on August 25th showed an unruptured cyst of the right tube. The tumor was separated

from the adherent omentum and opened. It contained a reddish sebaceous magma and a fetus. Total extirpation of the tubal cyst and right ovary, also cystic, was followed by rapid recovery.

The right cornu was normal, as was also the insertion of the round ligament into the uterus, not into the wall of the cyst. The excision of the cyst did not open the uterine cavity. These points, and the fact that tubo-interstitial pregnancies have been known to continue until near term without causing rupture, confirm a diagnosis of tubo-interstitial pregnancy lasting fourteen months, with death of the fetus at six months, rather than that of a pregnancy in the uterine cornu. The absence of rupture is explained by the attachment of the placenta to the uterine flank of the infero-lateral wall of the cyst.

H. D.

7. GAUTIER, G.: ELECTRICAL TREATMENT OF THE VOMITING OF PREGNANCY (*Archives de Tocologie et de Gynécologie*, January, 1895).—Applying the effects of the voltaic current upon disorders of the stomach in general, Gautier advocates its employment in the vomiting of pregnancy, of which he has cured twenty cases by this method. The positive pole is applied over the pneumogastric, phrenic, and sympathetic nerves above the right clavicle between the two insertions of the sterno-mastoid; the negative, at the level of the umbilicus. The current used is descending, of slight intensity and long duration. An ascending current provokes while a descending relieves vomiting. A strength of eight to ten milampères on an average is sufficient, and care must be taken to make and break the circuit gently, by using a rheostat or a battery from which single cells can be cut out. Each application should last from one-quarter to one-half hour.

H. D.

8. BUDIN: PROPHYLACTIC TREATMENT OF OPHTHALMIA NEONATORUM BY A NITRATE OF SILVER SOLUTION OF 1:150 (*Archives de Tocologie et de Gynécologie*, May, 1895).—After three years of experience Budin again recommends this treatment. In 1892 he published an article describing the use of nitrate of silver 1:50, advised by Bischoff and Credé as a prophylactic, a drop being allowed to fall upon the opened eyelids of the newborn infant. Further experience has shown the writer that, while this is absolutely efficacious, it causes a swelling of the eyelids, followed by so abundant suppuration that it has been mistaken by some for a purulent conjunctivitis, which they wished to relieve by new cauterizations.

Solutions of carbolic acid 2:100, mercuric chloride 1:5000, 1:4000, or even 1:2000, and insufflation of iodoform are worth far less than nitrate of silver.

Budin has continued the use of silver nitrate, but has employed a solution of 1:150, which, while causing none of the

inconvenience of the 1:50 solution, has given most satisfactory results. Of two thousand and four children treated with this solution there were only two cases of purulent ophthalmia and seven of secondary conjunctivitis. These results may be in part explained by the precautions taken. These include a bath and vaginal injection of mercuric chloride (1:4000) before confinement, if this is not too far advanced, drying the infant's eyes and introducing several drops of the 1:150 silver nitrate solution just after birth, and immediate isolation of the mother and child if the slightest complication occurs in either. H. D.

9. HOUZEL, G.: INFLUENCE OF SEA-BATHING AND PROLONGED IMMERSION UPON MENSTRUATION (*Congrès international des Bains de Mer et d'Hydrothérapie marine*, Boulogne-sur-Mer, 1894).—The writer believes that, in those accustomed to it, sea-bathing continued during menstruation aids this function, increases the duration of genital life, and greatly increases fecundity. He presents as a result of the examination of one hundred and twenty-three fisherwomen of Boulogne, who were in the habit of being in the sea for hours at all seasons and during their menstrual periods, the following: average of puberty, 13 years 10 months; of menopause, in sixty-five who had reached this period, 49½ years; giving a genital life three years seven months longer than in Paris. The average number of children of those married was 7.8. All favored being in the sea during menstruation. In some the flow was made more abundant, others were always free from pain if in the water. It might be imagined that this immersion had no effect upon the menses because these women had been accustomed to it from childhood, but thirty-six cases had not been in the sea before puberty. That the influence is not a race peculiarity is shown by the same results in the case of visiting foreigners.

Houzel therefore advocates sea-bathing for all weakness and irregularities in women who have not serious diseases of the appendages. It should be begun by living for a time in the sea air, and later becoming accustomed to bathing in the intervals between menstruations before doing so at those times. The blood is driven from the surface by the coldness of the water reflexly and by its pressure, increasing the blood supply of the viscera, the uterus and appendages among others. Their vitality is thus increased and they perform their functions with greater ease and intensity. H. D.

10. TUFFIER AND LEVI: STUDY OF URETERO-VAGINAL FISTULE (*Annales de Gynécologie et d'Obstétrique*, May and June, 1895).—In the treatment of uretero-vaginal fistula suturing the divided ends and applying an immovable intraurethral sound is the operation of election, as no fistula is left. A well-marked fistula may close spontaneously. If not, cauterization may be

tried, but for both congenital and acquired cases vesical anastomosis by way of the vagina is the method to be chosen if the ureter is not contracted. If this is rendered impracticable by adhesions the abdominal way is indicated, especially if the injury of the ureter is noticed during the operation. Even a pyelonephritis at the outset may recover without nephrectomy. It may disappear upon anastomosis of the ureter with the bladder; secondary hydronephrosis is often cured by this. If vesical anastomosis is impossible we may employ either intestinal, cutaneous, or vesico-cutaneous, all more serious than vesical on account of the liability to secondary infection which may necessitate nephrectomy. Because of this danger nephrectomy is shown by statistics to be safer than intestinal anastomosis, if the other kidney is healthy. The cutaneous method is less dangerous than the intestinal, though more inconvenient for the patient; but if the hopes of Rydygier and Van Hook are realized it will be possible to form a canal from the cutaneous opening to the bladder. Where the opposite kidney is diseased, or the general condition prevents nephrectomy, or if the patient has passed the sexual period, colpocleisis may be practised. With a young woman this is not allowable and the risks of nephrectomy must be run. Nephrectomy, however, is contra-indicated in all cases where trouble in the other kidney is suspected.

H. D.

ITEMS.

1. PRELIMINARY PROGRAMME OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, eighth annual meeting, at Auditorium Hotel, Chicago, September 24th, 25th, and 26th, 1895: 1. President's annual address, J. Henry Carstens, Detroit. 2. Relation of pelvic suppuration to structural changes that may occur in the Fallopian tubes, A. P. Clarke, Cambridge. 3. Nephrorrhaphies, George Ben Johnston, Richmond. 4. Detached fibroids, George H. Rohé, Catonsville. 5. A clinical contribution to lateral displacements of the uterus, Edward J. Ill, Newark. 6. Appendicitis, A. Vander Veer, Albany. 7. Intermediate treatment of puerperal sepsis, A. B. Miller, Syracuse. 8. Kraurosis vulvæ, a contribution to its pathology and therapeutics, H. W. Longyear, Detroit. 9. Report of three recent cases in gall-bladder surgery, Edwin Ricketts, Cincinnati. 10. Subject to be announced, H. E. Hayd, Buffalo. 11. Intestinal obstruction following peritoneal operations, A. H. Cordier, Kansas City. 12. Subject to be announced, S. Y. Howell, Buffalo. 13. Cure of tubal distention without laparotomy, F. A. Glasgow, St. Louis. 14. Subject to be announced, W. B. Dorsett, St. Louis. 15. Subject to be announced, C. C. Frederick,

Buffalo. 16. Hysterectomy in bilateral diseases of the appendages, giving remote results, Florian Krug, New York. 17. *Discussion: Vaginal hysterectomy versus abdominal section for pus tubes.* (a) Title unannounced (affirmative), X. O. Werder, Pittsburg. (b) When shall hysterectomy accompany bilateral removal of the appendages? Reuben Peterson, Grand Rapids. (c) Pathological and surgical contraindications of the vaginal route in dealing with puriform diseases of tubes and ovaries, Joseph Price, Philadelphia. (d) Title unannounced (affirmative), George H. Rohé, Catonsville. 18. *Discussion: Eclampsia gravidarum.* (a) Etiology, Frederick Blume, Allegheny. (b) Pathology, George F. Hulbert, St. Louis. (c) Title to be announced, W. H. Taylor, Cincinnati. (d) Prophylaxis, H. W. Longyear, Detroit. (e) Puerperal convulsions *versus* insanity, W. P. Manton, Detroit. (f) Treatment, J. M. Duff, Pittsburg; A. H. Wright, Toronto; Thomas Lothrop, Buffalo. 19. Exhibition of various types of rectal papillæ, R. T. Morris, New York. 20. Subject to be announced, E. Arnold Praeger, Los Angeles, Cal. 21. Ruptured interstitial pregnancy, L. H. Dunning, Indianapolis. 22. Has gynecology received just recognition as a specialty? M. B. Ward, Topeka. 23. Indications for operation in puerperal sepsis, L. S. McMurtry, Louisville. 24. Pneumo-peritoneum, James F. W. Ross, Toronto. 25. Subject to be announced, J. B. Murphy, Chicago. 26. Subject to be announced, Charles A. L. Reed, Cincinnati. 27. Subject to be announced, M. Rosenwasser, Cleveland.

WILLIAM WARREN POTTER,

Secretary.

2. THE WILLIAM F. JENKS MEMORIAL PRIZE of five hundred dollars, under the deed of trust of Mrs. William F. Jenks, has been awarded to A. Brothers, M.D., 162 Madison street, New York, for the best essay on "Infant Mortality during Labor, and its Prevention."

The Prize Committee also reports as highly meritorious the essay on the same subject bearing the motto "Vade Mecum."

The writers of the unsuccessful essays can have them returned to any address they may name, by sending it and the motto which distinguished the essay to the Chairman of the Prize Committee, Horace Y. Evans, M.D., College of Physicians, Philadelphia.

JAMES V. INGHAM,

CHARLES S. WURTS,

I. MINIS HAYS,

*Trustees of the Wm. F. Jenks Memorial Fund,
Philadelphia.*

THE AMERICAN
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AND
DISEASES OF WOMEN AND CHILDREN.

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ORIGINAL COMMUNICATIONS.

A REPORT OF THE GYNECOLOGICAL SERVICE OF MOUNT
SINAI HOSPITAL, NEW YORK, FROM JANUARY 1ST,
1883, TO DECEMBER 31ST, 1894.¹

BY

PAUL F. MUNDÉ, M.D.,
Gynecologist to the Hospital.

(With forty-five illustrations.)

PRIOR to the year 1877 there was no separate gynecological department in Mount Sinai Hospital. In this respect this hospital did not differ from the majority of others in this country at that time. Cases coming under this category were assigned to the medical and surgical female wards respectively, according to the estimated nature of the case. Gynecological operations were rarely performed, especially if of a serious or capital nature. With the establishment in 1875 of the dispensary connected with the hospital and of a separate gynecological department in that institution, cases of this nature were seen more frequently,

¹ I am greatly indebted for the collation of figures and the collection of statistics up to 1892 to Dr. L. J. Ladinski, of New York, formerly house surgeon to Mount Sinai Hospital, and for the collation of the cases of the last two years to Dr. Thomas D. Tuttle, house surgeon during the year 1894, now of Fulton, Missouri.

and if requiring hospital treatment were of course referred to the hospital wards. In time it became apparent that these cases could not receive the proper care and attention in the general surgical ward, and in 1877, consequently, a special gynecological service was created and Dr. Emil Noeggerath placed in charge, with the title of gynecologist to the hospital. On his resignation in the spring of 1882 I was promoted from the position of gynecologist to the dispensary, which I had held since the inception of that institution, to succeed Dr. Noeggerath as gynecologist to the hospital.

The gynecological service had been gradually increased, until, on my taking charge of it, it had attained its present dimensions and comprised twenty free beds in one large ward. This ward is situated on the northern side of the hospital, occupying the whole first floor, and is known in the hospital books as the "First Female Ward." There are ten beds on a side. The ward measures seventy-five feet in length, twenty-four feet in breadth, and fifteen feet in height. Each patient, therefore, has 1,350 cubic feet of air allotted to her. The beds are not surrounded by curtains, in order to allow free ventilation. There are eight large windows in the ward, besides seven top ventilators. At each end of the ward are large folding doors, which are usually kept open. The ventilation of the ward can therefore be said to be in every respect first-class, and such a thing as impure air or overcrowding is entirely out of the question.

At the rear of the ward is a small room used for the purpose of examination of patients and for minor operations such as can be performed without special preparation—*e.g.*, dilatation and curetting of the uterus, opening of small abscesses, etc. Bath rooms, lavatories, and closets occupy the remainder of this extension. In the front of the ward is a small private room designed for patients in moderate circumstances who are able to pay a trifling weekly sum to the hospital, besides another room with two windows which contains two beds and is specially reserved for laparotomy cases during the first week after operation, who are attended by special trained nurses furnished by the hospital free of charge.

So far as the general wards of a hospital permit, the gynecological patients of Mount Sinai Hospital enjoy all the privileges which can reasonably be expected by patients from the lower classes who pay nothing for either board or medical attendance.

The medical care of the ward is in charge of the surgical house staff of the hospital, which comprises one house surgeon, one senior and one junior assistant, one surgical dresser, and one provisional, the latter being assigned to the gynecological and ophthalmological services specially, his duty being to attend either of the surgeons of these departments during their visits when the senior members of the surgical staff are otherwise engaged. There are also four nurses constantly in the ward, who are detailed by the training school connected with the hospital. It is almost needless to say that the ward is never without sufficient supervision by these nurses either by day or by night.

At the head of each bed is a card bearing the date of admission, name, age, etc., of the patient, also the diagnosis after it has been made by me, and, if an operation has been performed, the date and nature of the operation. Besides, the usual temperature, pulse, and respiration chart hangs above each bed, and the customary notes are made at regular hours by the head nurse. Regular rounds are made by the house staff twice daily, and I make it a rule to visit the ward every day, with rare exceptions, and to examine every patient, no matter how trivial the complaint, at least once a week. Serious cases, of course, are looked after by me as often as they may require.

Visitors are allowed to see the patients between 2 and 4 o'clock every Wednesday, Saturday, and Sunday—a custom which undoubtedly is a great comfort to many patients, but at times is productive of harm, particularly in nervous, excitable, or very sick patients. Capital cases are not permitted to see visitors unless by my special permission.

The number of patients admitted to the gynecological service has gradually increased from year to year, being 181 in 1883 and 505 in 1894. A reference to the table given later on will show the relative increase of cases in each year. The number of operations has increased in proportion.

The gynecological service has always been and still is a continuous one, and is therefore a considerable tax upon my time and strength, which I have been able to bear in consequence of being allowed to take a vacation every summer of from two to three months. During this time in former years the service was supplied by one or the other of the visiting surgeons to the hospital, notably Drs. Scharlau, Wyeth, Fluhrer, and Gerster, who have very kindly substituted for me during my absence.

In order to furnish an official substitute during my vacation or other temporary absences, two years ago the directors appointed an assistant gynecologist in the person of Dr. Joseph Brettaner, who since then has had charge of the service during the summer months.

For the accommodation of patients able to pay there are twenty-five private rooms on the second floor. These rooms are at the disposal of all the members of the visiting staff, medical, surgical, gynecological, and ophthalmological and aural. The rules of the hospital permit the visiting physician or surgeon to charge patients occupying such private rooms for his services, provided the patient has been sent to the hospital by him as his private patient or the patient desires the exclusive attendance of one particular visiting physician.

In the following table will be found a record of the various diseases treated in my service during these twelve years, of the operations performed, and of the results obtained. It was not possible for me to give the figures from May, 1882, when I took charge of the service, to January, 1883, because the books at that time were so carelessly kept as to be useless for a report of this kind.

TABLE I.
LIST OF DISEASES AND THEIR RESULTS.

Disease.	Number.	Cured.	Improved.	Unimproved.	Died.	Remarks.
VULVA :						
Abscess (vulvo-vaginal)	11	10	1			During pregnancy.
Elephantiasis	1	1				
Epithelioma	2		2			
Fistula (vulvo vaginal)	1	1				
Polypus (left labium)	1	1				
	16					
PERINEUM :						
Laceration	184	142	41		1	Death from septicæmia.
Phlegmon	1	1				
	185					
RECTUM :						
Carcinoma	3		2		1	Incidental.
Condylomata	3	3				
Fissure in ano	3	3				
Fistula in ano	3	3				
Fistula (recto-vaginal)	5	3	2			
Hemorrhoids	8	7		1		Syphilitic.
Ischio-rectal abscess	1	2				
Polypus	1	1				
Proctitis	1	1				
Stricture	3		3			
Ulcer	1	1				
	23					

TABLE I.—Continued.

Remarks.	Number.	Cured.	Improved.	Unimproved.	Died.	Remarks.
URETHRA AND BLADDER:						
Urethral caruncle.....	11	11	..	..	..
Urethral prolapse.....	1	1	..	..	..
Urethral stricture.....	2	1	1	..	..
Urethral fibroid.....	1	1	..	..	..
Urethrocele.....	1	1	..	..	..
Epithelium of urethra.....	1	1	..	..	..
Epithelium of bladder.....	2	..	..	1	1	
Cystitis.....	24	14	11	2	1	
Vesico-vaginal fistula.....	11	9	1	1	..	
Vesico-uterine fistula.....	2	1	..	..	1	Peritonitis from rupture of ovarian abscess.
	60					
VAGINA:						
Atresia.....	8	7	1	..	..
Cyst.....	1	1	..	..	..
Cystocele.....	37	15	21	1	..	
Double.....	1	1	..	..	..
Epithelioma.....	2	..	2	..	..
Occlusion (imperforate hymen).....	1	1	..	..	..
Rectocele.....	65	54	7	4	..	
Rupture.....	1	1	..	..	..	Parturient.
Stenosis.....	7	7	..	..	..
Ulcer (due to pessary).....	5	4	1	..	..
Vaginitis (venereal).....	20	14	6	..	..
Vaginitis (senile).....	1	1	..	..	..
	149					
UTERUS:						
CERVIX UTERI:						
Carcinoma.....	14	3	4	..	5	
Hypertrophy.....	4	4	..	..	..
Laceration.....	518	316	169	33	..	
Polypos.....	8	8	..	..	..
	581					
CORPUS UTERI:						
Abortion.....	147	143	..	..	4	Deaths from septicemia.
Anteflexion.....	52	32	20	..	..	Sterility.
Atrophy (senile).....	1	..	..	1	..	
Endometritis (including cervical).....	297	197	94	6	..	
Fibroid tumor.....	130	56	60	7	7	Cured by galvano-puncture, abdominal hysterectomy, or vaginal enucleation.
Foreign body.....	1	1	..	..	..
Pregnancy and labor (ordinary).....	97	95	..	..	2	
<i>a.</i> Extrauterine.....	16	14	..	..	2	
<i>b.</i> Double uterus.....	1	1	..	..	..
<i>c.</i> Hydatids.....	4	4	..	..	..
<i>d.</i> Hydramnion.....	1	1	..	..	..
<i>e.</i> Placenta previa.....	2	1	..	..	1	
Hyperplasia.....	4	2	2	..	..	Uncomplicated.
Infantile.....	5	4	1	..	..	Amenorrhea and sterility
Inversion.....	1	1	..	..	..	Complete amputation and oophorectomy.
Lateral flexion.....	1	..	1	..	..
Metritis, puerperal.....	5	3	1	1	..	
Prolapse.....	40	15	22	2	1	Death after ventral fixation.
Retroversion and retroflexion.....	161	85	66	10	..	
Sarcoma (?) and carcinoma (4).....	6	..	3	..	3	
Subinvolution.....	21	9	12	..	..
Stenosis of uterine canal (ext. and inter.os).....	90	67	22	1	..	
	1083					
TUBES:						
Salpingitis, chronic (and oöphoritis).....	312	52	237	22	1	52 cured by removal.
Hydrosalpinx.....	4	4	..	..	..
Haematosalpinx (probably not ectopic).....	2	2	..	..	..
Pyosalpinx.....	40	21	11	3	5	
	228					

TABLE I.—Continued.

Disease.	Number.	Cured.	Improved.	Unimproved.	Died.	Remarks.
OVARIES:						
Abscess.....	16	1	..	..	1	
Cystic tumor	128	115	..	2	11	
Fibroid	2	2	..	..	..
Carcinoma.....	7	2	2	..	3	
Hematoma.....	3	3	..	..	..
Papil oma.....	3	1	..	..	2	
Prolapse.....	20	20	..	..	..
Edema.....	1	1	..	..	..
Oöphoritis (chronic) with salpingitis.....	339	60	275	4	..	19 cured by removal.
	723					
PELVIC PERITONEUM AND CELLULAR TISSUE:						
Abscess.....	103	87	6	1	9	
Carcinoma.....	1	..	..	1	..	
Cyst of broad ligament.....	10	10	..	..	..
Cellulitis.....	79	67	8	4	..	
Hematocoele (intraperitoneal) and Hematoma (extraperitoneal) }	27	21	1	..	5	Deaths from septicemia.
Peritonitis.....	602	301	281	10	7	
Sarcoma.....	4	..	..	2	2	
	826					
ABDOMEN:						
Abscess of wall of.....	1	1	..	..	..
General carcinosis of abdominal organs ..	9	..	..	3	6	
Carcinoma of peritoneum.....	1	..	..	1	..	
Carcinoma of colon.....	1	..	..	..	1	
Sarcoma of wall of.....	2	2	..	..	..
Peritonitis, general	24	12	..	..	12	Secondary and septic.
Peritonitis, tubercular.....	4	..	3	..	1	
Sinus of wall of.....	10	3	7	..	..
Hernia of abdominal wall (ventral hernia).....	6	3	3	..	..	Following abdominal section or pregnancy.
	78					
GENERAL DISEASES:						
Aménorrhœa.....	31	30	..	1	..	
Abscess of kidney.....	1	1	..	..	..
Abscess of psoas muscle.....	1	1	..	..	..
Carcinoma mamma.....	5	5	..	..	..
Dermoid tumor of nates.....	1	1	..	..	..
Hysteria.....	22	17	4	1	1	
Floating kidney.....	8	1	7	..	..
Intestinal obstruction.....	3	1	..	..	2	
Phlegmasia dolens.....	2	2	..	..	..
Phlegmon of pubes.....	1	1	..	..	..
Perityphlitis.....	3	1	..	..	2	
Pyæmia.....	1	..	..	..	1	
Caries of coccyx.....	1	1	..	..	..
Cystic tumor of mamma.....	3	3	..	..	..
Abscess of mamma.....	1	1	..	..	..
Nymphomania.....	1	..	..	1	..	Clitoridect. my.
	85					
Total number of diseases treated.....	3960	2211	1456	191	102	

Total number of patients treated.....3898
 Admitted and found not to be gynecological, therefore not included in
 above list 313

Total number of patients admitted to gynecological service from January
 1st, 1883, to January 1st, 1895. 4211
 Some patients therefore were afflicted with more than one separate disease.

REMARKS ON THE DISEASES TREATED.

DISEASES OF THE VULVA. *Vulvo-vaginal Abscess*.—Of this very common disease it will be seen that only eleven cases were observed, the reason for this relative infrequency being probably that such cases are usually the result of gonorrheal infection and that cases of this character were but rarely admitted to

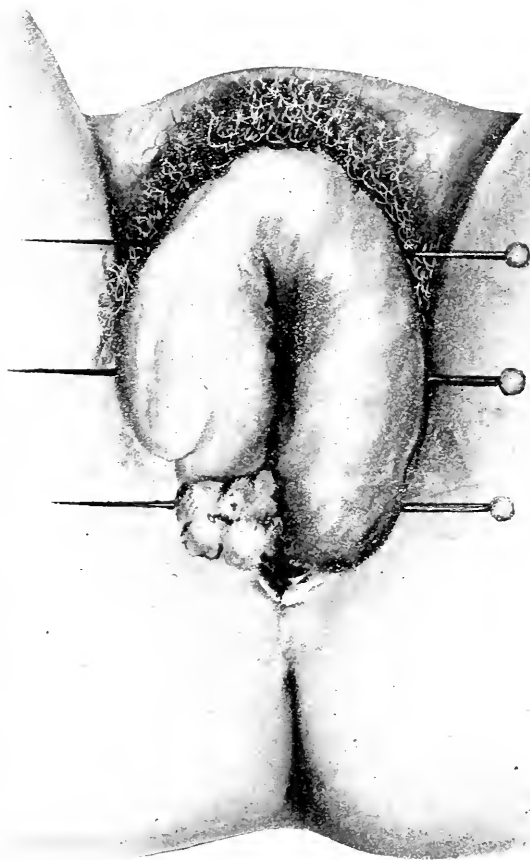


FIG. 1.—Elephantiasis vulvæ before operation.

the hospital, venereal diseases being more frequently seen in the large general hospitals of this city. The treatment consisted in a free incision, thorough antiseptic irrigation, and packing with iodoform gauze, under which ten of the cases were discharged cured, one leaving the hospital at her own request before complete cure.

Elephantiasis of the Vulva was observed once in a mulatto woman who was four months pregnant. The tumor encroached upon the vaginal orifice so much (the clitoris and labia majora and minora being all involved) that delivery at term would have been impossible. Hence the mass was removed with the knife, being first constricted with an elastic ligature tied under three long pins passed beneath the tumor. Bleeding vessels

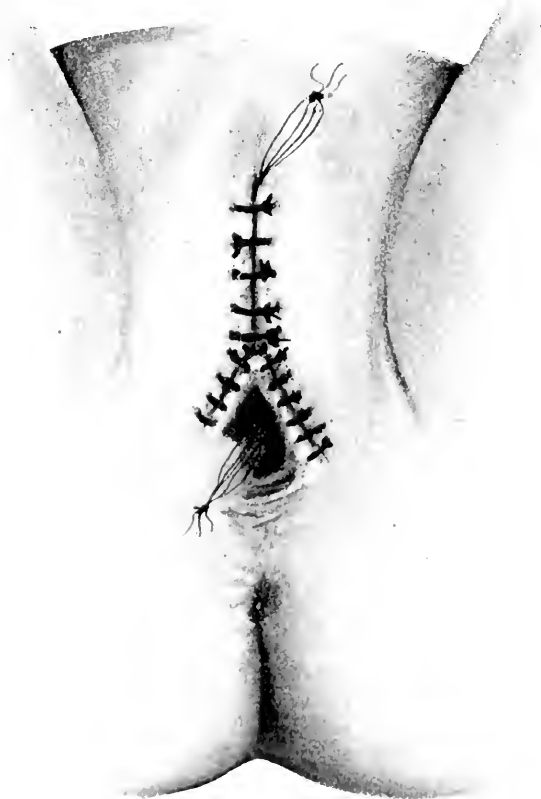


FIG. 2. Elephantiasis vulvæ after operation.

were thus secured separately and the wound closed by sutures. Pregnancy was not disturbed. (Figs. 1 and 2.)

Epithelioma.—Two cases were observed and apparently cured by complete extirpation of the disease with the knife. Whether the disease returned later I cannot say. The disease was limited entirely to the vulva and not secondary to its occurrence in a neighboring part. (Fig. 3.)

Polypus.—One very rare case of fibrous polypus hanging from the left labium was observed, and was of course easily cured by the removal of the tumor.

A Curious Injury of the Hymen was seen in three women, but, not being of pathological significance, is not recorded as a separate disease. It consisted in a tearing away of the whole ring of the hymen from its attachment during coition, leaving the membrane hanging only by a slender strip. The central open-

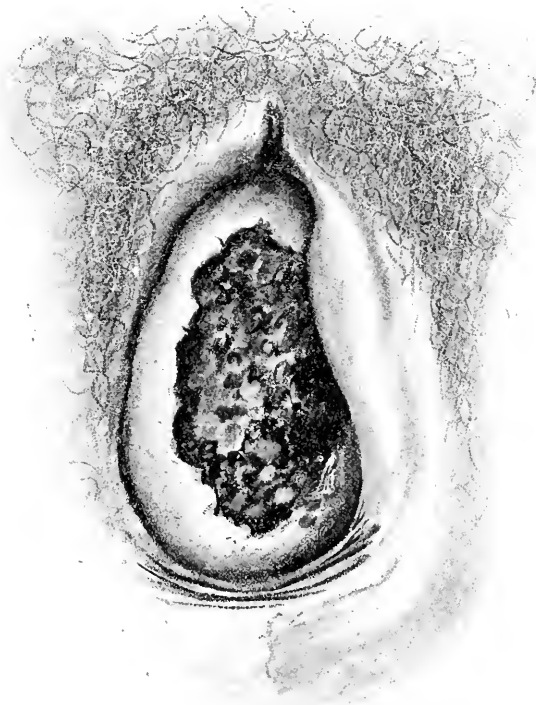


FIG. 3.--Epithelioma vulvæ.

ing of the hymen was uninjured, and the membrane hung loosely over the vaginal orifice. Two of the women had had children. Coition was of course performed under the loose hymen and caused no pain. Only if by chance the glans penis should happen to catch in the small opening of the hymen would pain and bleeding be produced by traction on the slender attachments during the efforts of intromission. This occurred

in a case reported by a Swiss physician, who first called my attention to this peculiar accident. (Fig. 4.)

PERINEUM.—Of one hundred and eighty-four cases of *laceration* of this body which were admitted, one hundred and forty-one were cured, of course by operation; forty-one were improved only, the operation not having proved an entire success; but all the cases were operated upon. Those which were too slight to

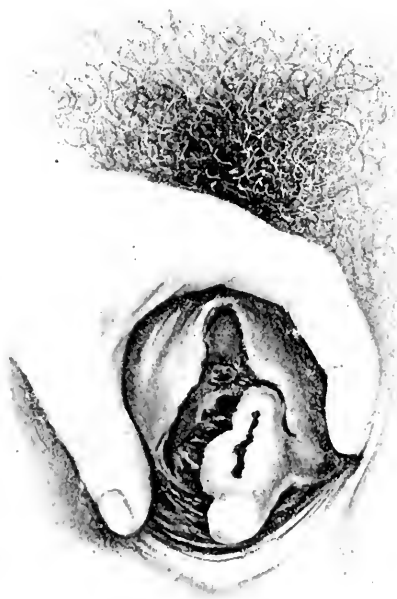


FIG. 4.—Curious injury of hymen.

require operation are not mentioned in this list. Two of the cases died, very much to my regret, both of septic infection the origin of which was never determined.

RECTUM.—This organ is not necessarily a part of the gynecological area, but its diseases are so commonly associated with pathological conditions of the sexual organs of the female that they were not infrequently met with in my service and there treated instead of being referred to the general surgical department.

Catarrh of the rectum is not a very uncommon affection in women and very often simulates utero-ovarian diseases. I find it very frequently associated with backward displacement of the

uterns and as a complication of hemorrhoids and fistula or fissure in ano. It is, therefore, well to remember that the rectum may be the seat of the symptoms of which the patient complains, and that anything like mucous or bloody discharges from that canal, or of burning, throbbing, bearing-down sensation in the region of the coccyx, or of painful defecation may with great probability indicate a disease of the bowel instead of the sexual organs. Preliminary to a successful treatment of a diseased condition of the rectum, dilatation of the sphincter ani is absolutely indispensable. In catarrh of the rectum applications of nitrate of silver solution, one drachm to the ounce, repeated every two or three days until improvement is manifest, have done me excellent service. The tenesmus usually following these applications must be relieved by hypodermics of morphine and by pouring melted vaseline into the bowel immediately after the cauterization. Warm carron oil (equal parts of linseed oil and lime water) used as an enema, two to four ounces, night and morning, to be retained, is an excellent remedy to promote healing of the inflamed rectum after cauterization.

Ulcers of the rectum are best treated by applications of pure nitric acid made through a cylindrical speculum.

The other affections of the rectum mentioned in the report differ in no wise from the same conditions in the male as regards either symptoms or treatment.

The interior of the rectum can be easily and fully exposed as far up as the level of the sacral promontory through an ordinary vaginal cylindrical speculum, or by elevating the posterior perineum and depressing the anterior perineum with a Sims speculum in each hand, the patient occupying the genu-pectoral position.

URETHRA AND BLADDER.—It is a curious fact that in the eyes of some general surgeons the female bladder should still be considered as not belonging to the sexual system of woman, but should be looked upon as an organ the diseases of which come under the head of general surgery. This fact may account for the comparatively small number of diseases of the bladder which come into my service. Until recently the admitting physician of the hospital has sent a very large number of diseases of the bladder in the female to the general surgical service, where they have been kept, treated, and operated upon, even to the point of vaginal cystotomy for chronic cystitis. And still all gynec-

cological text books contain separate chapters devoted to the diseases of the female bladder, Skene even giving as many as three hundred pages of his book to this subject. It has required a vigorous protest on my part to at last overcome this custom.

Strange to say, that very common disease, *urethral caruncle*, I find to have occurred only in eleven cases. I can hardly imagine this to be true, since my recollection certainly impresses me that I operated on many more instances of that affection, but probably it was only secondary to some other disease and has therefore not been specially noted.

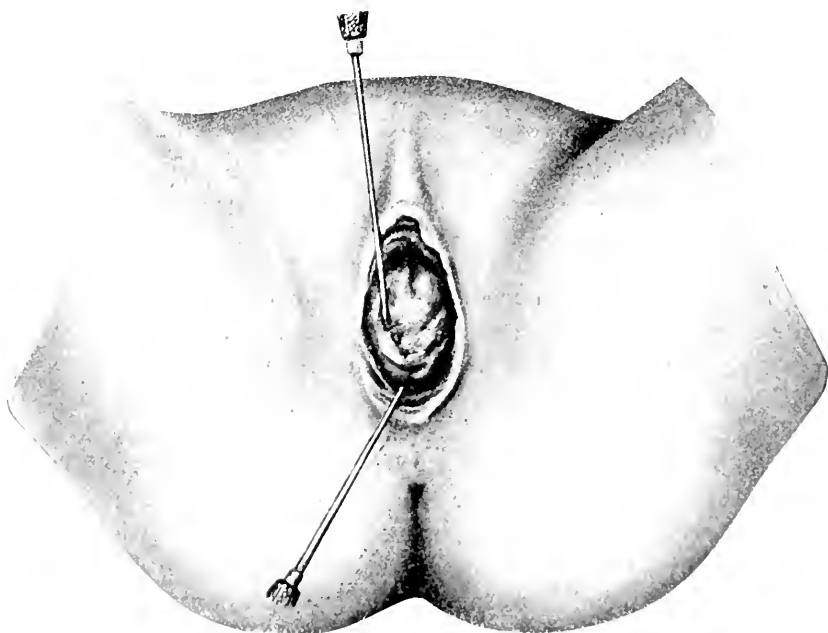


FIG. 5. —Prolapse of urethra in girl of 9 years. The upper sound is in the urethra, the lower in the vagina.

Prolapse of the Urethra occurred once, in a girl 9 years of age. It was cured by excision, the raw edges being united by catgut sutures. (Fig. 5.)

Stricture of the Urethra I find to have occurred twice. In my experience this is a rare disease in the female, quite contrary to its occurrence in the male. It is usually produced by traumatic influences, mostly during childbirth, and cured by dilatation.

Urethrocele—that is, a sacculation of the lower wall of the

urethra into the vagina—is mentioned once. This also is a rare disease in my experience, although I believe others, like Thomas Addis Emmet, report seeing it quite frequently. It must not be confounded with cystocele, which consists in a prolapse of the anterior vaginal wall and bladder without involving the urethra. The cure of urethrocele is entirely surgical and will be discussed further on.

Chronic Cystitis was met with twenty-eight times, and I know these figures to mean the condition independent of other pelvic inflammations. I am sorry to say that only fourteen cases are reported as cured and that one even died. We all know how intractable old cases of cystitis are in both sexes; nothing short of an artificial vesico-vaginal fistula will succeed in even relieving, not to speak of curing, an old catarrh of the bladder in which the mucous membrane has become so diseased by ulceration, cicatrization, and hypertrophy as to be practically no longer a mucous membrane. Often it is encrusted with calcareous deposits, which have to be scraped out bodily through the dilated urethra or an artificial vaginal fistula. The want of success in curing these cases, therefore, must not be a matter of surprise, since, as a rule, only inveterate forms of the disease come to the hospital.

Vesico-uterine and Vesico-vaginal Fistulae.—Of the former two cases were observed. One, which was really a combined utero- and vagino-vesical fistula, was cured by sewing the posterior lip of the cervix—the anterior lip and half of the anterior vaginal wall being destroyed—to the remainder of the anterior vaginal wall and then closing what was left of the fistula by transverse sutures, silver wire being used. In all twenty-six stitches were employed in this case. Union was complete, except a small stitch-hole fistula which was cured by a second operation. Of course the cervical canal was turned into the bladder, and menstruation must hereafter take place through that viscus; but that was inevitable under the circumstances, and the patient when discharged was exceedingly comfortable (Fig. 6). In the other case, while attempting to draw down the cervical canal in order to bring the fistula into view, an adhesion between the uterus and its appendages must have given way, for a fatal peritonitis developed and the post-mortem showed a rupture of an old abscess of the ovary which had not been suspected. Of the eleven cases of vesico-vaginal fistula nine were cured, one im-

proved, and one discharged uncured. Usually only one operation was necessary, the method employed being that of Sims—namely, broad, rather shallow paring of the edges of the fistula without wounding the mucous membrane of the bladder, the stitches also (silver wire) not including the bladder mucosa. The patient who was discharged only improved, as well as the one discharged uncured, refused treatment. This injury is now met with very rarely except by operators who have become known as specialists in this particular line. I hope, indeed, that

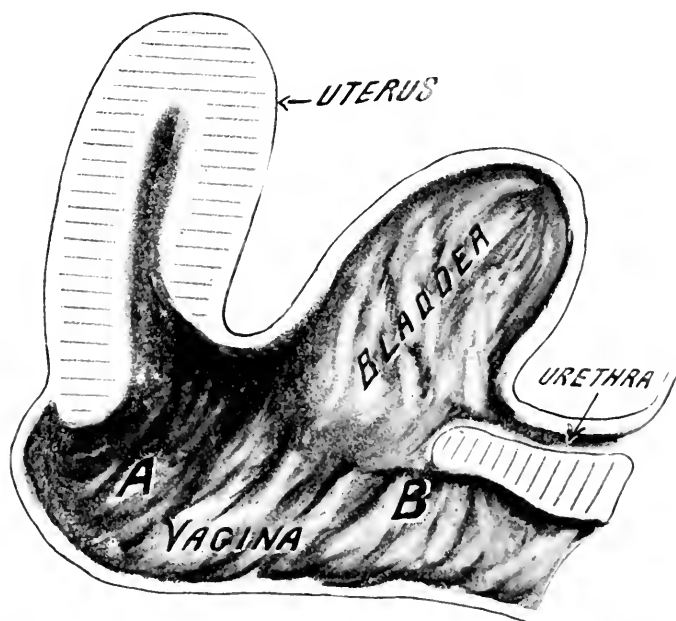


FIG. 6.—Utero-vesical fistula. Anterior lip of cervix sloughed away, posterior lip of cervix (A) sewed to remnant of vesico-vaginal septum (B). (Diagrammatic.)

the recent improvements in obstetrics will soon do away entirely with an accident which should really almost never occur.

VAGINA.—The most common affection of the vagina which came under observation was that of *Prolapse of the Posterior Vaginal Wall* together with that of the anterior wall of the rectum, commonly known as *Rectocele*. This was met with usually in combination with laceration of the perineum, sometimes associated with prolapse of the anterior vaginal wall and bladder, or cystocele, together with more or less dropping of the uterus itself. The treatment of this condition of course was entirely

operative, only such cases being mentioned in the list as required such radical means. The method of operation employed will be mentioned in detail hereafter under the head of Operations. In itself rectocele, in my opinion, is not a condition requiring active surgical interference; it is only when combined



FIG. 7.—Rectocele and cystocele.

with more or less prolapse of the anterior vaginal wall and bladder and of the uterus that it produces decided symptoms and requires surgical treatment. (Fig. 7.)

The next most common affection of the vagina was *Vaginitis*, of which twenty cases were admitted. The treatment of acute or subacute vaginitis, whether of venereal origin or not, consists,

in my practice, in the application of a solution of nitrate of silver, sixty grains to the ounce, every other day, the whole mucous membrane being thoroughly swabbed through a cylindrical speculum with this solution until it has changed its bright or dark red color to the pale pink hue of the normal vaginal lining. When this result has been achieved, astringents, preferably iodoform and tannin powder in equal parts, are applied to the vagina until it is entirely restored to health. A careful irrigation of the vagina with a 1:10,000 solution of bichloride precedes each

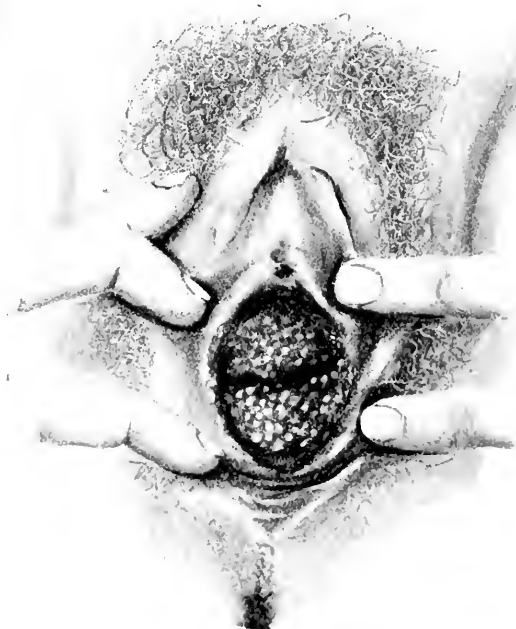


FIG. 8.—Granular vaginitis combined with rectocele and cystocele. The numerous swollen papillae of the vaginal surface are plainly visible.

cauterization. It usually takes from four to six weeks to cure such cases permanently. They are really not hospital cases at all and can be treated just as well in the office or dispensary, but they are often associated with endometritis or salpingitis and hence find their way into hospital wards, as I presume was the case with us. When the papillae are swollen it is called *granular vaginitis* (Fig. 8). The treatment is the same.

Senile Vaginitis, or an inflammation of the vaginal mucous membrane occurring after the menopause as a result of malnutri

tion of the part, is recorded only once. This is rather surprising, since it is not an uncommon affection; but it is no more fit for a hospital ward than the ordinary form of vaginitis, which I suppose explains its having been mentioned once only in our report. The treatment is practically the same as that of ordinary vaginitis.

Cystocele, or prolapse of the anterior vaginal wall and bladder, is recorded thirty-seven times (Fig. 7). As it is met with in every case of prolapsus uteri et vaginae, it must have occurred very much oftener than this, but only the cases in which it was the prominent symptom are mentioned under this heading. This condition is curable only by a plastic operation, but unfortunately the results of this operation are rarely permanent, since the scar which narrows the anterior vaginal wall and keeps it and the bladder in position is very liable to separate sooner or later after

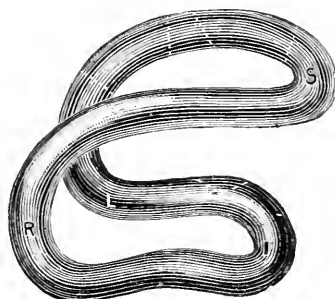


FIG. 9.—Gehrung's pessary for cystocele.

the operation and the old prolapse returns. I have been more successful in treating cystocele—I do not say curing it, but in relieving the symptoms and keeping the anterior vaginal wall in position—by means of a mechanical support than by operative measures. The mechanical support which I employ is that devised by Dr. Eugene C. Gehrung, of St. Louis, which answers the purpose better than any other contrivance of the kind which I have seen (Fig. 9). It has to be watched for fear of producing erosion of the vaginal wall, and of course it must be properly fitted and applied to each case; but when so fitted it can be worn for years with unlimited comfort and satisfaction, the only requirement being that every two or three months it should be removed, cleaned, and, if no abrasion has been produced, reinserted. It is only when the cystocele is associated with a rectocele and prolapse of the uterus itself that I perform the plastic operation

hereafter to be described for this condition. An uncomplicated cystocele I very seldom think fit for operation, since I can get much better results with the Gehring pessary. Hence we find in the list but fifteen of the thirty-seven cases of cystocele reported

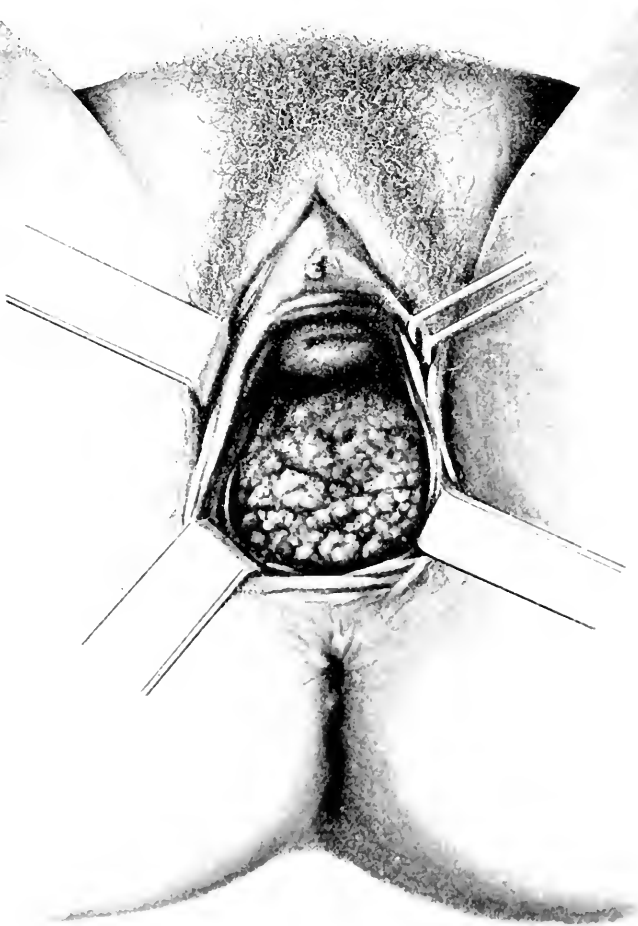


FIG. 10. — Epithelioma of posterior vaginal wall.

as cured. Twenty-one were improved, and in these, of course, the pessary mentioned was used. It is only when the perineum is very much torn or the pelvic floor too much relaxed, so that a Gehring pessary even of the largest size cannot be retained, that we are obliged to resort to operative means for the cure of the

condition or to let it alone. Astringents applied either as powder or in the shape of injections are practically of no benefit.

Stenosis and *Atresia* of the vagina were met with in fifteen cases, the cause of the malformation being either congenital or acquired. The majority of the cases of atresia were congenital, there being not only an absence of the vaginal canal, but also an imperfect development of the uterus and ovaries. In seven of these cases I made a new vagina, separating the rectum and bladder by blunt dissection to a sufficient depth and keeping the canal open by packing with iodoform gauze and using glass or hard-rubber dilators. In the cases of stenosis of the vagina where the canal was only partially obliterated the constriction was due either to congenital bands or to a contraction following injury received during childbirth. In either case it was easy to incise the constricted portion and by means of graduated dilators enlarge and keep the vagina at its normal calibre. In one case a congenital double vagina was observed. This was easily cured by dividing the septum and closing the bleeding surfaces with interrupted catgut sutures.

One case of *Cyst* of the vagina is mentioned, and another of *Hematoma*. Both are rather unusual conditions. The cyst was situated in the upper portion of the canal and was due probably to the encroachment of an unusually distended cervical gland. It was opened and dissected out. The hematoma was simply opened and packed with iodoform gauze. In both cases a cure resulted.

Uncomplicated *Epithelioma* of the vagina was observed in two instances. This is rather a rare affection, since malignant disease of the female genital organs usually begins in the cervix uteri, and the vagina is only secondarily affected. In neither case was it possible to excise the diseased tissue so thoroughly as to effect a cure. (Fig. 10.)

UTERUS. *Cervix*.—The most common affection of the cervix uteri which came under observation was *Laceration*, which was met with five hundred and eighteen times. In three hundred and forty-two of these cases the operative repair of the tear was performed, with three hundred and sixteen recoveries. The operation known as Emmet's, or trachelorrhaphy, was the one invariably performed. In one hundred and sixty-nine instances, the majority of which were not considered worthy of a plastic operation, a comparative cure resulted from the palliative

treatment employed, which consisted mostly in the sharp curette, nitric acid, or iodized phenol applied to the eroded surfaces. It will be seen by these remarks that I do not consider every case of laceration of the cervix to require a reparative operation. *It is the symptoms which the tear produces and the pathological degeneration of the cervix caused by it which in my opinion call for the operation, not the mere presence of a laceration.* The sutures employed in the operation for lacerated cervix were almost invariably silver wire, the exceptions being those cases of prolapsus where the cervix could be drawn down to the vulva, in which catgut was used. As regards the after-

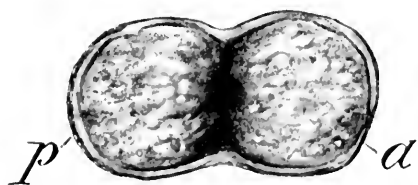


FIG. 11.

FIG. 11.—Bilateral laceration of cervix, third degree, seen through Sims' speculum, a, anterior lip; p, posterior lip.

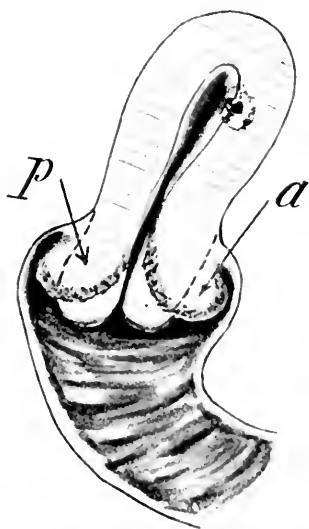


FIG. 12.

FIG. 12.—Lacerated cervix with everted lips, showing normal shape of cervix, to which it should be restored by uniting anterior lip, a, to posterior lip, p.

treatment of these cases of trachelorrhaphy, I have been in the habit of keeping the patients in bed for two weeks after the operation, using tepid carbolyzed douches once or twice a day merely for the purpose of cleanliness, allowing them to urinate themselves and permitting any position in bed except the upright. At or about the end of the second week I was formerly in the habit of making an examination with the speculum and, finding everything in good condition, of removing the sutures. Of late years, however, I have modified this practice inasmuch

as I have allowed the patients to sit up at the end of a week, to walk about at the end of the second week, and then, on examination finding the sutures in good condition, have sent them home with direction to return after the next menstrual period for the removal of the stitches. My object in doing this was to prevent the recurrence of an accident which I had seen twice in private practice, where removal of the sutures ten days after the operation allowed the imperfectly united lips of the tear to separate, requiring a second operation. Even in private practice I now request patients to call at my office after the first menstrual period following the operation, and there remove the stitches, and I have had no reason whatever to deplore my departure from the old-established rule. I really believe that the majority of patients after an operation for lacerated cervix would do just as well if they were allowed to be up and about attending to their daily duties, but if it should happen that union is not secured or a pelvic peritonitis or cellulitis occurs the blame would of course be attached to the operator who had not been careful enough to keep the patient in bed. As such accidents cannot always be positively foreseen or prevented, I have thought it wiser, in my own interest as well as that of the patients, to observe the precaution of keeping them in bed until all danger of inflammatory action has passed. I will say here briefly that my results from this operation of trachelorrhaphy in properly selected cases have been so good, and that so much benefit both locally and generally has been achieved, that I feel myself justified in recommending it whenever the symptoms produced by the laceration are such as appear curable only by its repair. This condition will probably be found to exist in about one-half of all lacerations of the cervix which come under the observation of the physician. In the other half Nature either cures of her own free will or else the laceration is too small to be productive of any damage.

One of the most frequent accompaniments of a lacerated cervix is a *Catarrh of the Cervical Cavity*. It is indeed a rare exception to meet with a large laceration without finding the lining membrane of the cervical cavity more or less diseased. The destruction of this diseased membrane, therefore, with the sharp curette is part of the treatment of the laceration, and can be performed either at the same sitting as when the laceration is united or previously if the case is a particularly bad one. I

find mentioned only fourteen cases of uncomplicated cervical endometritis, which is of course entirely out of proportion to the frequency of this disease. I can only explain this discrepancy by the fact that cervical catarrh was not mentioned as a separate affection when it occurred with laceration of the cervix. Cervical endometritis is so very common, even in virgins, uncomplicated with any other lesion of the uterus, that it is met



FIG. 13.—Epithelioma of the anterior lip of the cervix, with pregnancy at three months, cured by amputation with galvano-cautery; normal delivery at term.

with almost daily in the office of the gynecologist. Such cases are, however, not usually admitted to the hospitals, since they can be easily treated with the sharp curette and nitric acid at the patient's house, the confinement to bed rarely exceeding a week; and this, I suppose, must be another reason why so very few of these cases are mentioned in the report.

Epithelioma of the Cervix—that is, limited to that portion of

the uterus only—occurred fifty-four times. Curious to say, three of these cases are reported cured. One of them I remember to have occurred in a woman who had flowed profusely for three months and vaginal examination revealed a soft polypoid tumor growing from the anterior lip of the cervix (Fig. 13). The bleeding was so excessive that the vagina was tamponed and no further examination made. There was no suspicion of pregnancy, of course. The growth was removed close to the vaginal vault by the galvano-cautery wire and was found to be an epithelioma. Two months later she returned for observation and reported that she had not menstruated since, and on examination she was

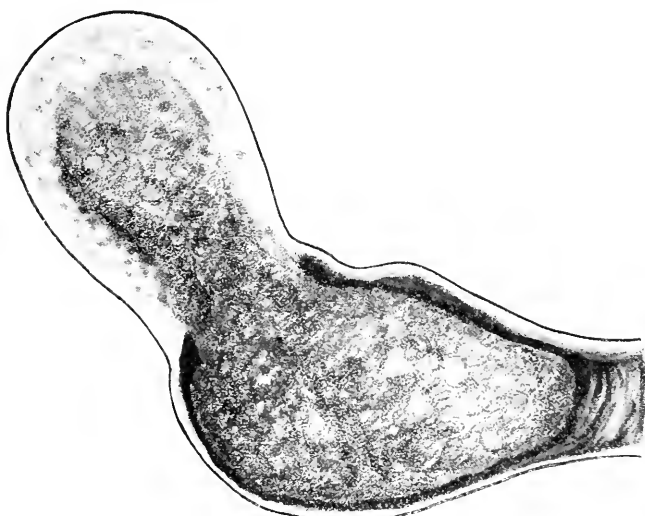


FIG. 14.—Epithelioma of both lips of cervix, the disease extending up into the body of the uterus to the fundus. (Diagrammatic.)

found to be about five months pregnant. The cervix was entirely healthy. A year later she returned with the child in her arms and the cervix was then found to be still in a normal condition. I think it fair to assume that this case was cured. In the other two instances the galvano-cautery wire also was employed and the disease apparently entirely removed, for when again seen, about six months afterward, the cervix was still healthy. The treatment in forty of the remaining fifty-one cases of epithelioma of the cervix consisted in the removal of the bleeding cancerous tissues by the sharp curette and the production of a slough by the application of chloride of zinc, fifty per cent, on cotton pads (Figs. 15 and 16). In one of these cases vaginal hysterectomy was

performed subsequently. Of course this treatment was only palliative, but it served to relieve the patient from the weakening discharges of blood and serum and to arrest the progress of the disease for a time. In some cases the curetting and caustic had to be repeated once or oftener after an interval of several months. I have seen life prolonged by this treatment in one instance four years. Of course it is questionable whether prolongation of life under such circumstances is desirable; at the same time it is our duty to adopt all measures which will allay suffering and prolong life in cases where we cannot cure. In eleven cases the disease of the cervix was thought to be suffi-

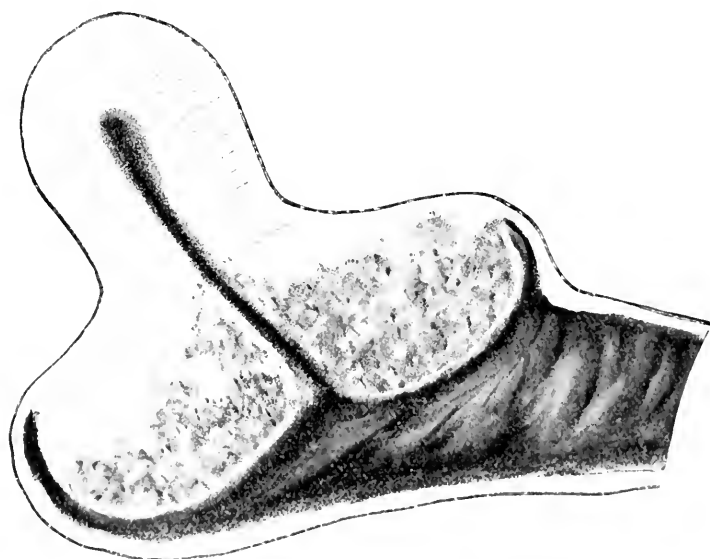


FIG. 15.—Encephaloid cancer of cervix without ulceration.

ciently circumscribed to permit of a fair prospect of a complete cure by removal of the whole uterus. Vaginal hysterectomy was therefore performed, with two deaths and nine recoveries, in all of which, however, ultimately the disease returned and the patients succumbed to it. (Fig. 15.)

BODY OF THE UTERUS. *Abortion.*—I find one hundred and forty-seven cases of this accident mentioned, with one hundred and forty-three cures and four deaths. Obstetrical cases are not as a rule admitted to the gynecological service of Mount Sinai Hospital, but it is inevitable that a miscarriage with retained secundines, or at times even a threatened abortion, comes

to the hospital and, the symptoms being urgent, is admitted. Of course the indication always was to remove such of the decidua as had been left in utero, with the finger if possible, or with instruments, the symptoms for such removal being either hemorrhage or septic infection. If removed early enough the recovery was prompt, but if the case had gone too far, as in the four fatal ones recorded, the death was due to septicemia. The instruments used for the removal of the retained secundines were those devised by me some fifteen years ago, namely,

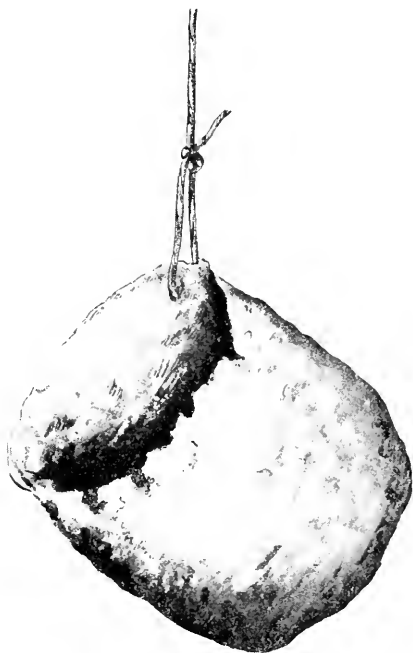


FIG. 16.—Chloride of zinc slough from cancer of cervix.

a large, long blunt curette and a broad flat forceps (Fig. 17). With the curette the attached portions of placenta and decidua were gently scraped loose and removed with the forceps. The uterus was then washed out with a hot Thiersch's solution or, if there were decided evidences of sepsis and the discharges offensive, with a 1:10,000 bichloride solution. An ice bag was then usually put over the abdomen in order to insure more thorough contraction of the uterus, and the usual aseptic pad applied over the vulva. Occasionally a secondary salpingitis or pelvic peritonitis resulted in these cases. It was of course impossible for

me to determine whether in these cases the abortion was accidental or induced. I can, therefore, not state whether there is any difference in the progress and prognosis from either of these causes. So far as my experience goes it would be difficult to determine whether a septic endometritis or pelvic peritonitis or salpingitis following an abortion were due to operative induction of the abortion or to external causes, unless indeed a distinct injury of the uterine tissue could be demonstrated.

Anteflexion.—This condition being only pathological in so far as it produces dysmenorrhea or sterility, the cases which were admitted complained solely of these two symptoms, and they

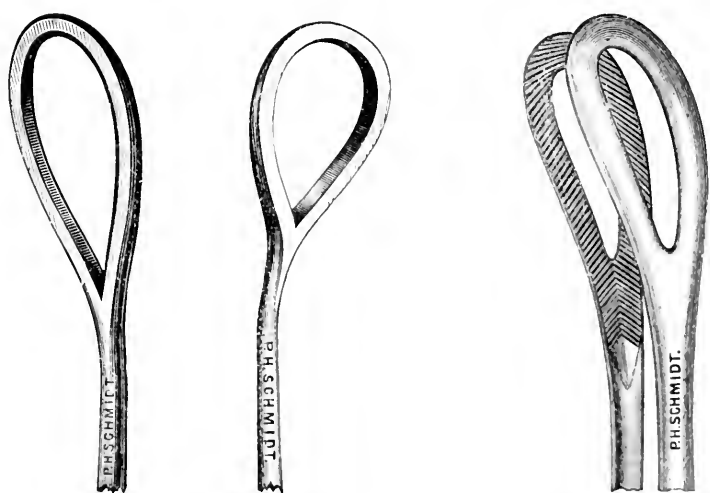


FIG. 17.—Mundé's placental curettes and forceps.

were admitted only for the purpose of the operative treatment necessary to relieve them.

Sarcoma and Carcinoma.—Only six cases of this disease restricted to the portion of the uterus above the internal os are recorded. This number is quite in proportion with the usual figures mentioned by most authorities as indicative of the relative frequency of cancer of the cervix and cancer of the body of the uterus. Twice the disease was of the sarcomatous variety, four times it was epithelioma. The entire uterus was removed in each instance—four times by the vagina, twice by abdominal section—and while in all the cases recovery from the operation occurred, the disease returned and the ultimate result was death. Three of these cases died in the hospital, the other three after

discharge. I confess that my experience in this respect, as indeed is the case with cancer of the cervix also, has not given me great hopes of the permanent cure of cancer of the uterus by a complete extirpation of the organ. I have still to see the case in which the disease did not return.

Three times the rare combination of malignant disease of the endometrium with fibroid tumors of the body was observed; twice the disease was an epithelioma and once a sarcoma. (Figs. 18, 19, and 20.)

Endometritis.—It will be seen by the large number of cases



FIG. 18.—Epithelioma of endometrium with fibroids of body of uterus.

of this disease recorded, two hundred and ninety-seven, that it is of very frequent occurrence. Indeed, this figure by no means indicates its frequency, since only a small proportion of the cases seen in my clinic at the Polyclinic and at my office were considered sufficiently severe to require admission to the hospital, and many did not avail themselves of the opportunity to do so. They were sent to the hospital for the purpose of treatment and cure by operation, which could not be safely carried out either in the clinic or at the office. I have found that it is useless to try to cure obstinate cases of endometritis by palliative, mild intrauterine applications such as are safe and

can be borne by the patients in an out-door clinic. I have therefore for a number of years adopted the more radical plan of putting such patients where I could employ active treatment with a fair degree of safety. Such active treatment consisted in thoroughly dilating the uterine canal with a steel two-branched dilator, curetting the whole endometrium carefully but thoroughly above the internal os with the dull curette, below with the sharp instrument, and then swabbing the whole cavity out with iodized phenol equal parts, or in bad cases with a fifty per cent solution of chloride of zinc. A thin strip of

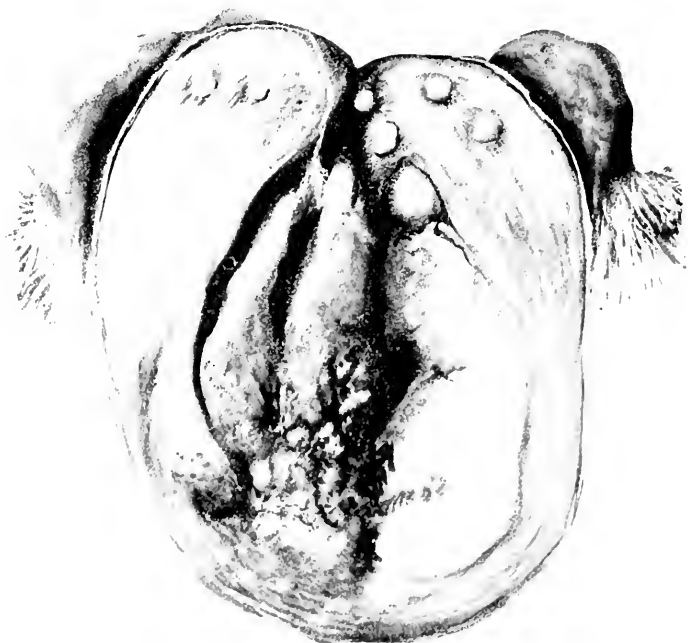


FIG. 19.—Epithelioma of endometrium with fibroids of body of uterus.

iodoform gauze was then passed into the uterine cavity to keep it open and facilitate drainage, and the vagina was loosely packed with the same. The patient was put to bed, an ice bag applied over the abdomen, and the case treated like that of any operation on the internal female genital organs. After forty-eight hours the gauze was removed, the vagina irrigated with a hot Thiersch's solution, and a fresh strip of gauze passed up into the uterus. When the caustic slough had come away, either it or a milder solution was applied and the gauze reinserted. This treatment was continued for two or more weeks—two usually

sufficing—until the discharge ceased and the mucous membrane began to assume a healthy appearance. The patient was allowed to leave her bed at the end of the first week, and subsequent applications, if necessary, could usually be carried out at the office. By this treatment I feel that I have cured more cases by far of chronic endometritis than by the milder measures which I formerly employed. Our figures show one hundred and ninety-seven cures, with ninety-four cases of improvement out of two hundred and ninety-seven, only six being mentioned as dis-



FIG. 20.—Sarcoma of endometrium with fibroids of body of uterus. Removed by abdominal section.

charged unimproved. The significance of endometritis in its relations to the causation of sterility, mainly, is so great and so unquestionable that I feel myself justified in recommending the treatment here described. It is perfectly safe if carefully and judiciously carried out; to practise it in the office or in an outdoor clinic would, however, be so hazardous as to be almost criminal. Relapses of course occur, as in every case of catarrhal disease of mucous membranes, and the patient should be prepared for the possibility of such an occurrence. The best hopes

for a permanency of a cure will result from impregnation and a normal delivery.

Fibroids.—Of the one hundred and thirty cases of fibroid tumors of the uterus which were admitted to the hospital the large majority were those of the body; only in three instances was the fibroid growth contained entirely within the tissue of the cervix and was removed by enucleation and traction. In twenty-one cases the fibroid tumor had developed into a polypus and protruded into the cavity of the uterus and partly out of the external os. It was thus rendered accessible to the fingers and instruments and was successfully removed, all the patients recovering but one who succumbed to the hemorrhage accompanying the extremely difficult enucleation of the high-seated pedicle of the tumor. Of the other seventy-four cases, in fourteen the tumor was not thought worthy of either operative or medicinal treatment, since it produced practically no symptoms; in the remaining sixty cases seven were discharged unimproved, operation or other treatment being refused, and forty-six were improved in course of time by ergot, curetting, and intrauterine galvanization. By improved I mean the symptoms—hemorrhage, pain, and growth of the tumor—were controlled by this treatment. Seven died, four after hysterectomy and three after attempted removal of high sessile tumors per vaginam. In three cases galvano-puncture of the fibroid was practised through the vagina and a current up to one hundred and fifty milliamperes was passed through the tumor and uterus for fifteen minutes under anesthesia. Only one sitting was given in each case. The abdominal electrode was a large wet clay pad. In each instance a quite extensive inflammation and sloughing was excited by the galvano-puncture, which required free incision, curetting, and drainage, but the tumors gradually disappeared and the patients were discharged cured.

In twenty-nine cases the entire uterus and the appendages were removed with the tumor by abdominal hysterectomy, with four deaths.

Pregnancy.—The cases admitted with this diagnosis, ninety-seven in number, were mostly urgent in character or they would not have been received. Of these two died from septic infection brought in by them from without.

There were fifteen cases of *Extrauterine Pregnancy*, with thirteen recoveries after operation and two deaths; one case of

double uterus with pregnancy, abortion, and recovery; four of hydatids of the chorion with recovery, one of hydramnios, and two of placenta previa.

Only one case of *Inversion* of the uterus was met with, which was originally of puerperal origin, but was of a year's standing when admitted. All attempts at reposition failed, consequently the ovaries were removed by abdominal section and the uterine body constricted with an elastic ligature. Gradual sloughing took place and the patient recovered.

Of *Retroversion* and *Retroflexion* there were one hundred and sixty-one cases, with eighty-five recoveries, sixty-six improved, and ten unimproved. The recoveries were mostly cases in which Alexander's operation or ventral fixation had been performed. The improvements were due to the retention of the uterus in its normal position by a pessary.

Congenital Constriction or *Stenosis* of the uterine canal is mentioned as having occurred ninety times. The symptoms were those of sterility and the treatment practically the same in all the cases—that is, crucial division of the external and internal os, dilatation and packing of the canal with iodoform gauze, or, as I used to do in former years, the insertion of a hard-rubber stem. The stem was worn, except during menstruation, for several months, care being taken to avoid all danger of either sepsis or inflammation. What the ultimate result of this treatment was I cannot say, since only a small proportion of such patients ever return to report whether conception has taken place or not. In the report sixty-seven are mentioned as having been cured—that means, of course, that they were discharged with a normally wide uterine canal; twenty-two were improved, and one was discharged unimproved.

FALLOPIAN TUBES.—*Salpingitis*, subacute or chronic (more or less frequently associated with chronic oöphoritis) occurred three hundred and twelve times, with fifty-two recoveries (after removal), two hundred and thirty-seven improved (after palliative local treatment), twenty-two unimproved, and one death.

Hydrosalpinx was met with in four cases, with one recovery after removal, and three recoveries after vaginal puncture and drainage.

Hematosalpinx, two cases, both cured by removal. In these cases there was no evidence of ectopic gestation.

Pyosalpinx occurred more frequently than either of the two

former varieties, there being forty cases recorded, with twenty-one recoveries after removal by celiotomy, eleven improved after vaginal puncture and drainage, three unimproved (refused operation), and five deaths after celiotomy.

OVARIES.—*Ovarian Tumors or Cysts*, one hundred and twenty-eight cases, with one hundred and fifteen cures (operative removal), two unimproved (refused operation), and eleven deaths.

Carcinoma of the ovaries was met with in seven instances; *Hematoma* and *Papilloma* each in three cases.

Chronic Oöphoritis, more or less with salpingitis, occurred in three hundred and thirty-nine cases, sixty of which were cured (nineteen by removal) and two hundred and seventy-five improved; no deaths.

Solid Tumors of the ovary occurred twice and both were cured by removal. They are not included in the one hundred and twenty-eight cases above mentioned.

ABSCESS OF THE OVARY.—Only since the progress made in abdominal surgery during the last fifteen or twenty years has abscess of the ovary become recognized as a not very uncommon condition. It was formerly admitted, it is true, that suppuration of the ovary might occur as the result of an acute inflammation of that organ following parturition. Puerperal abscess of the ovary was therefore mentioned in most of the older text books and known as a condition of the greatest danger, usually indeed ending in death through rupture and general peritonitis. I remember very well how in 1868, when I was assistant to Prof. Scanzoni at the Maternity Hospital in Würzburg, Bavaria, a puerperal woman died suddenly, a few days after confinement, from general peritonitis produced by some, to us unknown, cause. The autopsy showed a ruptured ovarian abscess, the existence of which had not been suspected, as the woman had no symptoms of intrapelvic inflammation or suppuration prior to or immediately after confinement. It is probable that this abscess existed for some time before labor. Prof. Scanzoni demonstrated the specimen to the class and said that abscess of the ovary was practically unknown except as the result of a post-puerperal inflammation. Abdominal section, however, has shown us that suppuration of the ovary may occur not very infrequently entirely independent of parturition. I cannot say exactly how frequent ovarian abscess is, but I find among the records of this service

sixteen cases in which I operated for this condition. Out of these sixteen only five had borne children or aborted. The frequent non-puerperal origin of the ovarian suppuration is thus confirmed by these figures. There is no anatomical or physiological reason why the ovary should not undergo inflammatory changes or eventually become destroyed by suppuration, any more than the tonsil or any other highly vascular organ. As it is well known, the ovary is supplied with numerous blood vessels, lymphatics, and nerves, which enter it at the hilus between the layers of the broad ligament. The regularly recurring congestions of the menstrual epoch, and the frequent accidental, often even much greater, congestions attending sexual excitement and exposures to external cold, must necessarily gorge the organ with blood and often bring about an inflammatory condition. Let this stimulus be repeated a number of times at intervals insufficient for the return of the organ to its normal vascular state, and an inflammation of the ovary is very easily brought about. Now let a catarrhal or purulent inflammation of the Fallopian tube be added to this hyperemic condition of the ovary, as is even more frequently the case than the ovarian inflammation itself, and a localized peritonitis with adhesions of ovary and tube results. In course of time a repetition of these processes finally brings about a breaking-down of the elements of the ovary and the formation of an abscess. Probably one of the most frequent causes of ovarian abscess is a direct transmission of septic germs through the lymphatics from the infected endometrium. At any rate, the inclusion of the ovary and tube in adhesions interferes with the circulation in these organs and certainly assists in causing their purulent degeneration.

Symptoms.—A woman in whom suppuration of the ovary has taken place may not appear seriously ill. She may be able to be about and to attend to her household duties, but she is scarcely ever free from pelvic pain. This pain is increased at intervals, chiefly by exertion and at the time of the menstrual epoch. At these times and on over-exertion there may be slight chills with moderate rise of temperature. But all these symptoms vary in intensity according to the acuteness of the process. If the abscess of the ovary follows a puerperal inflammation of the pelvic organs its course will be much more rapid and severe than in the cases referred to. The temperature will be high, chills frequent, pain severe, and indications for active therapeutic interference

urgent. It is in these acute cases that rupture into the peritoneal cavity takes place and causes fatal peritonitis. When, however, the symptoms are less acute or the originally acute stage has, contrary to the rule, become chronic, abscesses of the ovary may go on for months, and perhaps even one or two years, without producing very dangerous or urgent symptoms. As already stated, there is constant pain in the pelvic region, with more or less exacerbation at different times. The patients are more or less chronic invalids, and still there seems to be no special reason for alarm or for urgent operative interference. The reason for this is that the sac of the abscess becomes enclosed little by little in firm adhesions which prevent its rupture, and systemic infection is limited by the comparatively slight absorbent power of the walls of the abscess. It is only in this manner that we can explain the fact that women can carry such collections of pus about in their pelvis without symptoms of general septic or pyemic infection. Of course they are never well, never free from discomfort, but they may go on in this manner for an unlimited length of time.

Diagnosis.—So much more has been written about collections of pus in the Fallopian tubes since Tait some fifteen years ago first demonstrated the frequency of this occurrence, that but little attention has been paid to suppuration of the ovary. Hence, whenever a fluctuating tumor was found in the pelvic cavity, to one side or the other or behind the uterus, which by its constitutional symptoms was supposed to contain pus, the diagnosis perhaps being verified by aspiration, it was pronounced to be a pyosalpinx or pus tube. I do not deny that pyosalpinx is very much more common than pus ovary. When the pyosalpinx alone is present its diagnosis is not at all difficult, since the peculiar elongated sausage shape of the dilated tube readily distinguishes it from the round ovary. When, on the other hand, an abscess of the ovary alone exists, its round, elastic contour, similar to that of an orange, easily distinguishes it from the distended tube. But when the two exist together, as is by no means uncommon, a differential diagnosis is either difficult or absolutely impossible. We have then a mass which is much larger than either the distended tube or ovary alone, more irregular in outline, but usually spherical or irregularly so, the irregular outline being produced by the distended tube, which has curled about and has become attached to the ovarian sac. Once having pus

in one of the appendages, it is very immaterial, of course, which it is, ovary or tube, since its removal is the only proper course, with the few exceptions hereafter to be noted. To remove the tube without the ovary, or the ovary without the tube, no matter which is diseased, how much or how little, would be absurd, since one is useless without the other. It is extremely probable that purulent accumulations in the tube are much more frequent, as already stated, and occur much more rapidly than those in the ovary; and therefore the more tumultuous in its course and the more rapid the formation of the pus in the pelvic mass, the more likely is it to be intratubal. Of course not every collection of pus in the pelvic cavity is either tubal or ovarian, since accumulations of purulent fluid do occur in Douglas' pouch as simple pelvic, that is to say, intraperitoneal abscess, shut off from the rest of the peritoneal cavity by the superincumbent adherent intestines. But such accumulations of pus have no distinct outline as recognizable by the finger in the vagina; they are diffuse, one spot fluctuating and pointing more decidedly, perhaps, but there is no oval or spherical outline as in pyosalpinx and pus ovary.

Prognosis.—The eventual outcome of an abscess of the ovary is usually very much the same as that in the presence of pus anywhere else—the pus finally succeeds in forcing its way out in whatever direction the least opposition is encountered. This process may occupy some time, even several years, and in a few rare instances the pus may become cheesy and innocuous and remain *in situ* permanently. This result is most likely to occur in abscess of the ovary, which indeed, except in acute cases, seldom bursts inwardly into the peritoneal cavity, because the walls of the abscess are thick and embedded in diffuse adhesions. The case is different in pyosalpinx, where the walls of the sac are much thinner and the danger of rupture internally far greater. Of course abscess of the ovary, so long as the pus remains in any active condition in the sac of that organ, is a constant source of danger to its possessor.

In accordance with the rule which applies to all inflammatory conditions of the appendages of the uterus, it seldom occurs that the appendages of one side are decidedly affected by inflammatory changes and those of the other side remain entirely healthy. The causes which produce inflammation of the uterine appendages—namely, chiefly infection entering from without and

spreading to the tubes through the uterine mucous membrane—usually affect both appendages more or less; hence abscess of the Fallopian tubes is more frequently found double than single. This does not imply that both tubes are diseased to the same extent, because one may contain a much larger amount of pus than the other. With the ovary this does not seem to be the case, since from my notes of the sixteen cases operated upon by me I find that in six cases the left ovary alone contained an abscess, in two the right, and in the eight remaining cases both ovaries had undergone suppuration. In only three of the cases was there a pyosalpinx present at the same time, although in all the cases both tubes were found more or less diseased and were removed with the corresponding ovary.

Complications.—The most serious complication of an ovarian abscess, so far as the operation for its removal is concerned, is the tendency to adhesions between it and the adjacent peritoneum and chiefly to the intestine. Perforation of the abscess into the gut is of not very infrequent occurrence and very much endangers the recovery of the patient. Such abscesses discharge into the gut at more or less regular intervals, and may thus at times be entirely empty after such a discharge, while at others they are full, distended, and easily recognizable per vaginam. Systemic infection, as I have already stated, is rare in these cases, since the absorptive power of the abscess sac is but slight. Perforations into the bladder and vagina may also occur. If the opening of the abscess into the bowel should happen to be very low, so that the contents of the sac drain freely, spontaneous closure of the abscess may in rare cases take place. On the other hand, if the opening is near the upper margin of the abscess sac, fecal matter may get into the sac and increase still further the suppuration and danger of additional inflammation.

Significance.—It goes without saying that an ovary that has been destroyed by suppuration is of no practical use to its possessor. The same applies, with a very slight limitation, to the Fallopian tube, because it is possible that with our recent improved methods of surgery a tube may occasionally be restored to its normal calibre and functions. An ovary, however, in which all the Graafian follicles have been destroyed by suppuration can never be rehabilitated. I have already pointed out the dangers which result from the persistence of an ovarian abscess, and I can but repeat here the old surgical rule that pus, wher-

ever situated, should be evacuated by the nearest possible approach as soon as discovered.

PELVIC PERITONEUM AND CELLULAR TISSUE.—*Pelvic Peritonitis* was the most frequent disease met with. It occurred in six hundred and two cases, with three hundred and four recoveries, two hundred and eighty-one improvements, ten discharged unimproved, and seven deaths. This proportion of mortality, about one per cent, is what I am accustomed to see from pelvic peritonitis. In general peritonitis, of course, the proportion is rather the other way. My prognosis, therefore, in uncomplicated pelvic peritonitis is usually good, even though the disease may last a number of weeks or even months. The usual progress of the disease is a gradual absorption of the exudate, together with proportionately diminishing pain and fever, and an entire restoration to health so far as the general condition of the patient is concerned. Locally, however, adhesions between intestines and the different pelvic organs, with more or less distortion of the uterus and appendages and immobility of both, are rather the rule than the exception as the result of a protracted pelvic peritonitis. Suppuration—that is, a breaking-down of the exudate and the formation of a pus cavity which, while originally intraperitoneal, is of course entirely closed off by adhesions from the general peritoneal cavity—is not at all uncommon, the proportion of such occurrence being, however, probably not more than between five and ten per cent. Pelvic peritonitis, as a rule, exerts a very much more decided influence upon the general condition of the patient than a pelvic cellulitis: there is more decided shock, more pain, higher temperature, and a greater unwillingness of the exudate to yield to treatment and become absorbed. Hence pelvic peritonitis usually lasts much longer than pelvic cellulitis.

The *causes of pelvic peritonitis* may be either septic infection or traumatic influences occurring during or following parturition or some injury to the pelvic organs during perfectly proper surgical procedures, such as curetting or intrauterine applications or dilatation of the uterine canal; or it may be the result of exposure during the menstrual period; or, finally, and this is by no means the least frequent cause, gonorrheal infection entering the peritoneal cavity through the uterine canal and tubes may be the cause of the local peritonitis. *Indeed, I am convinced that in the large majority of cases the starting point of pelvic*

peritonitis is a salpingitis, whether the nature of the latter is puerperal or not.

Pelvic Cellulitis occurred far less frequently, only seventy-nine cases being noted, with sixty-seven recoveries, eight improvements, and four not benefited (discharged by request); no deaths. This showing at once demonstrates that pelvic cellulitis is a far less serious affection than pelvic peritonitis. The pelvic cellular tissue is by no means so sensitive as the peritoneum. Cellulitis is usually the result of infection during parturition; occasionally it may be produced by pressure in the vagina, such as of a pessary, or by some accidental injury, such as bruising or laceration by obstetrical instruments. The usual course of the exudate in pelvic cellulitis is absorption, which takes place much more rapidly than in pelvic peritonitis. Suppuration, however, is more common in cellulitis than in peritonitis, the proportion being fully ten to fifteen per cent.

The differential diagnosis between these two conditions, pelvic peritonitis and pelvic cellulitis, is often by no means easy. If we remember that an exudate which is situated where there is no cellular tissue must necessarily be intraperitoneal, and another the location of which is outside of the peritoneal cavity deep down in the pelvis, reaching even to the perineum or situated between rectum and vagina behind or bladder and vagina in front, must necessarily be cellutic, we will usually avoid mistakes. Still, it is often exceedingly difficult to distinguish between a hard, brawny mass which extends up on the anterior lateral abdominal wall and which is situated between the peritoneum and the muscular fascia, having worked its way up from between the two folds of the broad ligament, and another which consists of the agglutinated intestines which have become adherent to the peritoneum of the anterior abdominal wall. In case of suppuration in such exudates it is often only when the abscess has been opened and is found to extend down into the pelvic cavity, closely hugging the bony pelvis, that we are able to decide that the exudate was extraperitoneal. Often only by making a median abdominal incision and locating the appendages on the affected side, merely as a matter of diagnosis, would it be possible to distinguish whether the exudate was intra- or extraperitoneal. If an abscess has once formed, and, if intraperitoneal, is securely shut off from the rest of the peritoneal cavity by adhesions, it makes very little difference whether it was origin-

ally intra- or extra peritoneal, so far as its evacuation and subsequent treatment are concerned. Both these varieties of pelvic abscess, the true or extraperitoneal and the false or intraperitoneal (this latter variety usually starting from an inflammation or a suppuration of the Fallopian tubes), show a great tendency to burrow down into the pelvis and to leave behind a more or less deep and tortuous sinus after being opened. Such sinuses are usually very slow to heal, and baffle the skill and ingenuity of the surgeon to the greatest degree.

The usual *treatment of pelvic peritonitis and pelvic cellulitis* has been in my hands as follows: The diagnosis having been made, if there is as yet no decided exudate, but only a more or less distinct tenderness in the vaginal vault as felt by digital examination or by pressure through the abdominal walls, an attempt is made to check the inflammation by applying an ice bag over the hypogastrium. Perfect rest is enjoined, with low diet and morphine by the rectum or hypodermically, as the pain may require. If there is a temperature (in the mouth) above 102° , small doses of phenacetin (five grains), with two or three grains of citrate of caffeine to each dose if the heart is at all weak, are given according to the temperature. If in spite of this the exudate develops, or if it is already present when we first see the case, and the temperature is above 102° , the ice is continued or applied and kept on until the temperature is reduced below 101° . Then the ice (either ice bag or ice-water coil) is removed and replaced by cold-water compresses, which are gradually allowed to become warm, and in the course of a few days, the temperature remaining as low as 101° or below, are changed for hot flaxseed poultices with the object of inducing absorption of the exudate. If the exudate is large, easily felt and mapped out through the abdominal wall, whether it be extra- or intraperitoneal, I usually order a large fly blister, the poultices being placed over it immediately and continued after it has drawn. These blisters may be repeated if the exudate proves obstinate in its absorption. I do not as a rule employ hot vaginal douches in the acute stage of pelvic peritonitis, partly because I do not think they do much good, and partly because the necessary moving about of the patients does them harm. Absolute rest in the recumbent posture is one of the essential factors of a successful treatment of cases of pelvic inflammation. The bowels are kept moderately free by means of saline laxatives or enemata, if the

stomach is irritable, as it usually is in the earlier stages. After a week's complete absence of fever and pain the patient may be allowed to try sitting up in bed, and after another week of favorable progress she may sit in a chair and gradually be allowed to walk.

Exacerbations of fresh exudate, sometimes indicating suppuration, are very common in both pelvic peritonitis and cellulitis, and should of course always indicate a return to the measures employed in the acute or subacute stages. In this way such cases may run on for weeks and months, taxing the endurance of both patient and physician to the utmost, and still eventually recover. After a pelvic cellulitis the recovery is usually more complete and there are less traces left behind of the inflammation and exudate, such as uterine displacement, adhesions, etc., than is the case after a pelvic peritonitis. There appear to be certain seasons of the year when these pelvic inflammations are much more common than at others. This appears to be the case in the early spring months, when I have noticed that for several weeks almost none but patients with pelvic inflammation apply for admission. I have thus had as many as seventeen beds out of twenty occupied by such cases at one time, very much to the disgust of both myself and the house staff, since all such patients are liable to be difficult cases to manage, being peevish, complaining, impatient, and not particularly interesting from a scientific standpoint. For this reason at such seasons operative cases are naturally less common, simply because there are no beds left for them.

Pelvic Abscess is recorded one hundred and three times, with eighty-seven recoveries, six improvements, one not improved, and nine deaths. As I have already mentioned, it is not always possible to state whether an abscess was originally extra- or intraperitoneal. I have therefore not attempted to discover how many of each variety occurred, finding that the records do not give sufficient data on the subject. Many of these abscesses pointed through the anterior abdominal wall, many others through the vaginal roof, and were opened wherever the pus was most easily reached. Thorough irrigation and drainage was in each instance employed. As a rule I have found those abscesses which pointed into the vagina much more tractable to treatment and more disposed to close than those which had to be opened through the anterior abdominal wall. The difference

in ease of drainage in either case will readily explain this experience. In the nine fatal cases death occurred either from exhaustion due to the long continuance of the illness or from complication with interstitial nephritis. So far as I remember, there is no case on record of an extraperitoneal abscess bursting into the peritoneal cavity and causing fatal peritonitis, but there are two of adherent pyosalpinx which caused death in this manner before the indistinct abscess could be detected and evacuated. The autopsy showed the cause of death.

Cysts of the Broad Ligament, or Parovarian Cysts, were seen twelve times and were cured by laparotomy and enucleation of the cyst, with stitching of the layers of the broad ligament into the abdominal wound in each instance, the cyst gradually filling up by granulation. Ovarian cysts which have developed between the layers of the broad ligament are not included in this category. In one case the cyst was of enormous size, containing thirty-eight pints of pure limpid fluid. I believe this is one of the largest cysts of the broad ligament on record. It had been tapped several times by other physicians, and I decided upon removing it because it continued to refill. It was fully six months before the sac had entirely closed.

Hematocele and Hematoma.—I have adopted the German differentiation between these two conditions, and understand by *hematocele* an accumulation of blood contained within the peritoneal cavity, whether free or closed off by adhesions above; and by *hematoma* a similar effusion of blood into the pelvic cellular tissue.

Of *Pelvic Hematocele* I find recorded eleven instances, with seven recoveries, one improvement, and three deaths. It is a well-known theory, originally advanced by Tait, that a sudden effusion of blood into the pelvic cavity of a female is in the large majority of cases due to the rupture of an ectopic pregnancy, usually of the tubal variety. I think that this view is correct, although I dare say that once in a great while such a hemorrhage may take place from the bursting of a varicose vein situated somewhere in the pelvic cavity. In these cases of intraperitoneal hemorrhage death may either occur rapidly, too quickly to permit of surgical interference by abdominal section and ligation of the bleeding vessel; or the patient may linger on for several days and give the surgeon an opportunity to cure her by such an operation, or, if not so relieved, dies

from exhaustion; or the blood becomes encapsulated, the hemorrhage ceases, and the patient gradually recovers without an operation, the blood clot being absorbed after a greater or lesser lapse of time. It depends upon the peculiar features of each individual case what the treatment shall be. An existing hemorrhage not arrested, with the patient in condition to permit of a surgical procedure, calls for immediate opening of the abdominal cavity and tying of the bleeding vessel, with removal of the bleeding tube if this proves to be the seat of the hemorrhage. This was the course pursued in fourteen of the fifteen cases of tubal pregnancy here reported. When the case becomes more subacute, time is given for consideration, but probably the same line of action should be followed. The hemorrhage arrested, however, and the effused blood encapsulated and shut off from the general peritoneal cavity by adhesions, the treatment is practically the same as for originally extraperitoneal effusions—viz., vaginal evacuation; and this was the method employed by me. The three deaths were due to previous septicemia and exhaustion.

Hematoma, or Effusion of Blood into the Pelvic Cellular Tissue, was met with in sixteen cases, all of which were operated upon, with fourteen recoveries and two deaths. The exact etiology of extraperitoneal effusions of blood in the pelvic cavity is not so absolutely certain that I would be willing to lay down a positive law on this point. It is quite probable, as Lawson Tait has also stated, that the majority of these cases are due to the rupture of a tubal pregnancy between the layers of the broad ligament. The history certainly in most instances seems to bear out this conclusion, but an ovum or even embryonic tissue is very frequently not found in the discharges from these sacs, the contents of which are merely dark, coagulated or fluid blood. As it is impossible for us to say whether in these cases a varicose vein was or was not present, a rupture of which may have been the source of the hemorrhage, the exact etiology can usually not be determined. I am, however, inclined to favor the intraligamentous rupture of a pregnant tube as the usual source of the bleeding. My treatment in these cases of pelvic hematoma is the same as that employed by me in encapsulated pelvic hematocele. I have always sought the most prominent portion of the tumor protruding into the vagina, and where I could feel most distinctly the fluctuation and the mass was most tense I have inserted an aspirator needle, and on verifying the diagno-

sis by the withdrawal of a few drops of dark blood I have opened the sac with sharp-pointed scissors, separating their blades, and between them inserting a steel two-branched dilator. The scissors were then withdrawn and the opening enlarged as much as possible by the dilator, the finger inserted, and by its means the blood clot broken up and gradually removed with the finger or the large dull curette or a Sims depressor. The cavity was then thoroughly washed out with a hot Thiersch's solution, a large drainage tube inserted, and means assured for thorough irrigation and drainage. In course of time, usually not more than four to six weeks, these cavities would close completely, often without any rise of temperature, and the patients make a comparatively painless and uneventful recovery. Only in one instance was I induced by some publication of other, more enterprising, and I think more foolhardy operators than myself to open the abdominal cavity and endeavor to extirpate the intraligamentous sac through such an incision. Finding that I could not approach the wall of the hematoma to the anterior abdominal wall and attach it there by stitches before opening it, I closed the abdominal cavity and opened the hematoma per vaginam as just described, with a perfectly satisfactory result. The two women who died succumbed, one to secondary hemorrhage occurring during the night before help could reach her, and the other to septicemia. In the treatment of these cases of pelvic hematoma I have almost invariably followed the rules which I have laid down for my guidance in all cases of fluid pelvic effusions which dip deep down into the pelvic cavity—namely, that if the tumor can be easily reached and opened and its contents evacuated through a vaginal incision, whether they be blood, pus, or ovarian fluid, I have preferred as a rule so to operate upon them, and have not had any occasion to regret this practice. So far as ovarian cysts are concerned, I would limit this procedure, however, entirely to single intraligamentous cysts, which in my opinion are the most difficult and disastrous instances of cysts of the ovary which the surgeon encounters. Undoubted pyosalpinx also, especially if double, and double ovarian abscess I likewise would prefer to remove *in toto* by abdominal section rather than treat by vaginal incision and drainage. While the latter might be easier and less dangerous, a permanent cure would be less likely to result than if the entire sac of the abscess is extirpated.

It amuses me to see gentlemen here and abroad in medical

journals and gynecological societies now advocating the opening of pelvic abscesses per vaginam as something quite new and original, when I can prove by my published writings that I followed this practice before 1880 and have since then been an earnest supporter of it. (See Seguin's Arch. of Med., 1880; Jour. Obst., 1885; N. Y. Jour. Gyn. and Obst., 1892.)

Sarcoma of the pelvic cellular tissue was encountered in four instances, two being discharged unimproved and two dying, the diagnosis not being made positively until the autopsy. Of course such cases are incurable no matter what is done, and, if the diagnosis can be made beforehand, no operation or treatment is indicated.

ABDOMEN, AND GENERAL DISEASES.—*General Carcinosis* of the abdominal organs was met with in nine cases, with six deaths after exploratory incision and three discharged unimproved.

Sarcoma of the Abdominal Wall involving one-half of the left rectus muscle was met with in two instances. Both were cured by extirpation of the diseased tissue, during which operation the peritoneal cavity was opened and as much peritoneum was excised as was attached to the posterior surface of the diseased muscle. The operations were decidedly difficult and complicated, but both patients recovered, although I am not able to say whether a relapse occurred or not, as I lost sight of them.

General Peritonitis was very much more rare than the pelvic variety, being seen only twenty-four times. Of these twenty-four only twelve recovered and twelve died, the inflammation being secondary or septic and failing to respond to any form of treatment. In two cases the peritonitis was of the purulent variety, and abdominal section with thorough irrigation was adopted, but both patients succumbed.

Tubercular Peritonitis was seen four times, with three improvements following abdominal section, and one death. I have not seen any favorable results in this form of peritonitis from opening the abdominal cavity, either in hospital or private practice.

Abdominal Sinus remaining after section for diseased ovaries and tubes or pelvic abscess which was opened through the abdominal wall occurred ten times. It is with regret that I am obliged to report that only three of these ten were cured by treatment—that is, ennetting and packing the sinus with sterilized gauze. The seven others were discharged improved—that is, with the sinus very much diminished in depth but still un-

healed. The cases where the sinus penetrated so deeply as to reach the roof of the vagina were treated by through drainage into the vagina, the practice being to gradually draw the drainage tube downward and give the upper portion of the wound a chance to close by granulation and contraction. Plausible as this method seemed, it unfortunately was not always successful, and I know of nothing in my experience more obstinate or tedious to cure than these deep pelvic sinuses persisting after pelvic abscess or suppurating laparatomies.

Floating Kidney came into my service accidentally eight times. In two instances the kidney was found in the pelvic cavity, situated behind and to the left of the uterus, and simulating there the diseased and adherent appendages of that side. In the first case the correct diagnosis was not made until the offending mass was enucleated, as it was supposed, from the adhesions, but actually from its capsule, and brought out of the abdominal wound, when it was found to be the left kidney. It was removed, the pedicle being tied off in the usual manner and dropped, and the patient recovered. In the second instance the presumptive diagnosis of displaced kidney was made in recollection of the first case, and being confirmed by abdominal section, and the kidney being healthy otherwise, it was not disturbed. This case also recovered. Once nephrorrhaphy was performed. In the other cases no operative interference was attempted, supporting trusses being thought sufficient.

Obstruction of the Intestines was met with three times, abdominal section being performed in all, with one recovery. This case was a most desperate one, the intestines being universally adherent and almost gangrenous. Abdominal hysterectomy for fibroid had been performed by another surgeon some time before. After all the obstructions and adhesions were loosened and the abdominal wound closed, large oxgall and turpentine enemata, with calomel and jalap by the mouth, were ordered, with the result of producing copious fluid and gaseous evacuations which completely reduced the tympanites and paved the way for recovery.

Perityphlitis should not really have been admitted to my service, but, under the mistaken diagnosis of pelvic peritonitis on the right side, three such cases were received. In two the diagnosis was made by me before operation; one case recovered after operation; the other, complicated by pregnancy and abortion, died of peritonitis after operation. In the third there was

an abdominal tumor of the size of a cocoanut on the right side, which was correctly pronounced to be an ovarian cyst, and the temperature and pain present were ascribed to probable torsion of the pedicle and inflammation of the cyst. On opening the abdominal cavity, however, it was found that while the diagnosis of ovarian cyst was correct, the fever was due to a deep-seated abscess which had burrowed down from the pericecal region between the layers of the right broad ligament, and had so destroyed the tissues in that neighborhood as to cause a perforation into the general peritoneal cavity. This patient died from general peritonitis. The presence of the ovarian cyst had, of course, masked the true nature of the case.

Cancer of the Breast occurred five times, and was cured, so far as the results are known, by complete extirpation of the mamma and cleaning out of the respective axilla. As this organ is not really included under the generative organs of the female in the classification of the hospital, such cases would not have come under my care unless admitted by me as private patients, which was the fact in all these five cases. Many authors, and authorities also, however, claim that the female breast is a part of the sexual organs and therefore its diseases belong to a gynecological service.

(To be continued.)

CASE OF ABSENT UTERUS:

WITH CONSIDERATIONS ON THE SIGNIFICANCE OF HERMAPHRODITISM.

BY

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(With nine illustrations.)

B. M., a girl of 17, was brought to my office by her married sister on account of the non-appearance of the menstruation. During the last preceding year the girl had been subject to occasional paroxysms of pelvic pains, which appeared at approximately monthly intervals. A tendency on the part of the friends to emphasize both the intensity and the regularity of these paroxysms interfered with the trustworthiness of their description.

The patient was a moderately-sized, rather thin, ill-developed, and anemic girl, and her appearance was so suggestive of the

common chlorotic etiology of amenorrhea that I was at first inclined to postpone any local pelvic examination and advise only the usual iron treatment. Yielding, however, to the insistence of the sister and guardian of the patient, I finally proceeded to this examination and discovered quite different conditions from what had been anticipated.

The labia were small, but about as much developed as is often the case in girls with the appearance of the patient. The introitus vaginæ seemed constituted by an opening only large enough to admit the index finger. This opening was on the level of the perineum, the vestibule being absent, and the finger, once inserted in the passage, encountered no further obstacle, but also failed to discover anything resembling a cervix uteri at the bottom of the canal. During the attempt to do so, but not until after some minutes, there was a sudden gush of urine from the canal. The exploring finger was thereupon withdrawn and search made for the urethra in its usual situation, but none was found. Only a single orifice existed between the pubes and the anus—namely, the one just described, and which was situated at the centre of the region. Behind, or below it, lay a normally-appearing perineum; in front, or above, a triangular space enclosed by the nymphæ minoræ and surmounted by a mons sufficiently covered with hair.

Subsequent exploration under ether with the endoscope¹ confirmed the supposition imposed by the flow of urine—namely, that the unique canal led directly into the bladder. For it was not difficult to discover, in the large cavity in which the canal opened, the ureters in their normal position discharging the accustomed jets of urine.

Exploration by the rectum, conjoined exploration by means of the finger in the rectum and the sound in the bladder, failed to discover the least trace of uterus or ovaries. The complete absence of the latter, however, can hardly be held to be demonstrated by an examination made on the living subject only, and would even seem improbable if distinct menstrual molimina existed. The patient, however, was under observation during eight or ten weeks, seven being passed at the New York Infirmary, and during this period no definite menstrual symptoms were observed.

In the case of B. M., therefore, urinary organs seemed to exist alone, and the genital to be completely absent. It could not,

¹ This exploration was made by Dr. Willy Meyer.

however, be inferred that the canal which led into the bladder in the case of B. M. was simply the urethra or the *dilated* urethra. Cases similar to this one have been described, and especially in married women, where coitus has been accomplished by means of such a canal, and it has been then said that the urethra had been dilated in consequence of the function so unnaturally imposed upon it. Evidently no such explanation of the large urinary canal would be possible in the case of B. M.; and, indeed, in all cases the explanation is erroneous. The canal is not dilated, but is so much larger than the urethra, though so much smaller than the vagina, because it is constituted by the embryonic organ which is intermediary between these two—namely, the urogenital sinus.

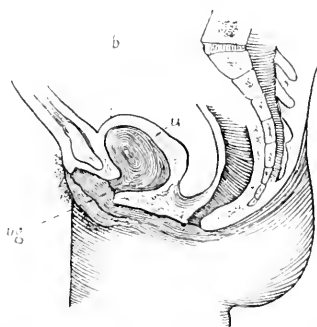


FIG. 1.—Case of absence of the uterus with persistence of urogenital sinus (*ug*), which combines the urethra and vagina.

The above diagram from Schröder exactly illustrates the condition which existed in the case of B. M.

The details of embryological development in this respect are well known even in the human being.

The urogenital sinus, though originating in the stalk of the allantois and thus in a viscus proper to early embryonic life, is classed with the external organs of generation.

Tourdes¹ divides these organs into three classes, which he calls segments and distinguishes as the deep, middle, and external segment respectively. The following table shows this lucid classification and indicates not only the three separate foci of development for the generative organs, but also for each segment, the organ in it of embryonic life, as also the male or female organs which subsequently develop from the embryonic original:

¹ Dict. Encycl. des Sciences méd., 1888, vol. xiii., art. "Hermaphrodites."

	<i>Embryo.</i>	<i>Adult, Male.</i>	<i>Adult, Female.</i>
DEEP SEGMENT.	Genital ridge and gland, undifferentiated.	Testis.....	Ovary.
MIDDLE SEGMENT.	Wolffian body...	Kidney Epididymis.....	Kidney. Parovarium.
	Wolffian duct...	Vas deferens..... Ejaculatory duct..... Pediculated hydatid...	Duct of Gärtner. Canal of Rosenmüller. Pediculated hydatid.
	Müller's ducts...	Atrophied	Fallopian tubes, uterus, vagina.
EXTERNAL SEGMENT.	Urogenital sinus.	Vesical trigone.... Prostatic urethra Membranous urethra...	Vesical trigone. Urethra. Vestibule.
	Genital tubercle..	Penis.....	Clitoris.
	Genital furrow...	(Closed).....	Vulva.
	Genital fold.....	Scrotum.....	Labia.

Fig. 2, taken from Quain, gives a diagram of the primitive urogenital organs. The right half of the diagram is shaded so as to indicate schematically this classification of the reproductive organs into the deep, middle, and external segment. The genital gland constituting the so-called deep segment is shaded darkest, the middle segment somewhat lighter, the external segment the lightest of all.

The genital ridge is a mass of mesothelium lying on each side of the median line of the embryo, which at first is called indifferently the genital gland and shows no demonstrable sign of sexual differentiation. Later this gland becomes either an ovary or a testicle, according as its primary tissue becomes invaded by the seminiferous tubules, or by the tubes of Pflüger, the progenitors of the Graafian vesicles in the ovary. This primary mass or gland is the earliest portion of the reproductive system to be definitely organized, and on this account is called the primitive or deep segment (see Fig. 2 *ot*, Fig. 3 *ot*).

The appearance of the transitory organs from which the middle segment of the reproductive apparatus arises follows close upon the development of the genital gland. These embryonic

organs, in some of the lower vertebrates (selachian fishes), are two, the Wolffian body and the segmental duct. The latter subsequently divides, by the formation of a septal partition, into two ducts, the Müllerian and the Wolffian.¹

In the amniotic vertebræ, and thus in the human embryo, the Müllerian and Wolffian ducts are separate from the moment of their first appearance, although running closely adjacent and parallel with each other toward and over the Wolffian body. With the latter the Wolffian duct subsequently coalesces, while the Müllerian becomes removed from it by a distance which

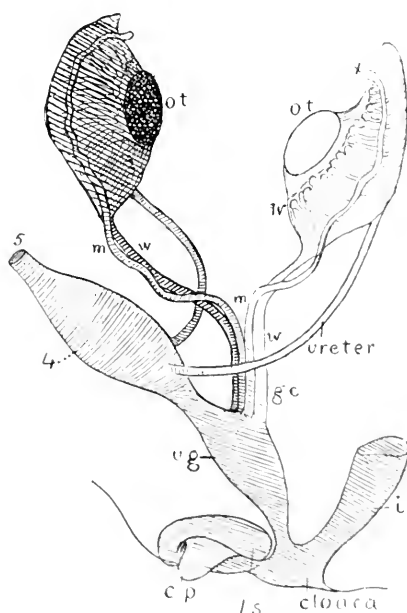


FIG. 2.—(From QUAIN.) Diagram of the primitive urogenital organs in the embryo previous to sexual distinction. Chiefly in profile. 3, ureter; 4, urinary bladder; 5, urachus; *ot*, the mass of blastema from which ovary or testicle is afterward formed; *W*, left Wolffian body; *x*, part at the apex from which the cornu vasculosi are afterward developed; *w, w*, right and left Wolffian ducts; *m, m*, right and left Müllerian ducts, uniting together and with the Wolffian ducts in *gc*, the genital cord; *ug*, sinus urogenitalis; *i*, lower part of the intestine; *cl*, cloaca or common opening of the intestine and urogenital sinus; *cp*, elevations which become clitoris or penis; *ls*, ridge for labia majora or scrotum.

constantly increases throughout embryonic life (see Figs. 2 and 3, *w w* and *m m*).²

¹ Balfour, "Comparative Embryology"; Semper, quoted by Minot, "Human Embryology."

² In the figures the original independence of the Wolffian duct is not shown, but only its condition after coalescence with the Wolffian body.

The Wolffian body (Figs. 2 and 3, W), developed in the human embryo during the third week, and during the period of sexual neutrality performing the functions of an excretory gland, contributes later toward the formation of the permanent kidney, and, in the male, of the epididymis, an essential part of the adult sexual apparatus. In the female the Wolffian body shrivels to a functionless relic of fetal life, the parovarium.

The ligament of the Wolffian body retains more importance, for it becomes the round ligament of the uterus. The segmental duct, on the other hand, or the two closely united ducts which in the upper vertebrates coexist from the beginning, develops into adult organs of great importance in both sexes—organs

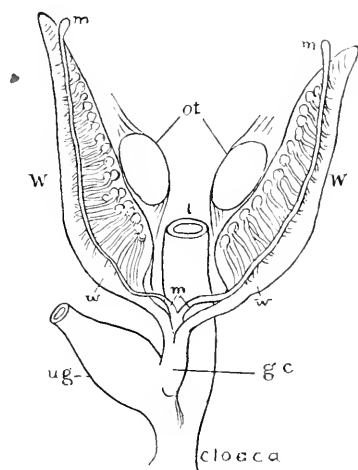


FIG. 3.—(QUAIN.) *ot*, seat of origin of ovaries or testicles; *W*, Wolffian bodies; *w*, *w*, Wolffian ducts; *m*, *m*, Müllerian ducts; *gc*, genital cord; *ug*, urogenital sinus; *i*, intestine; *cl*, cloaca.

homologous with one another, in that they are both destined to convey, to the exterior, sex cells developed in the genital gland; yet strongly contrasted with one another, in that the excretory ducts of the female also serve as reservoirs for the prolonged retention of the product of sex cells, the embryo and fetus of a new generation. The Wolffian duct evolves to the vas deferens and ejaculatory duct in the male, while in the female it atrophies, and its useless remnant is represented in the extrauterine organism by the duct of Gärtner and the canal of Rosenmüller. In both sexes a portion of the duct persists as the "pediculated hydatid."

The Müller's duct atrophies more completely in the male than does the Wolffian duct in the female, while in the latter it develops into the Fallopian tubes, uterus, and vagina, thus constituting a segment of genital apparatus far more massive than exists in any part of the adult male.

The external segment of the genital apparatus (see Fig. 2) consists of the external sex organs, of which one only originates in an embryonic viscus; the remainder develop from the external epiblast of the body. The urogenital sinus (Fig. 2, *ug*) is formed from the lower part of the stalk of the allantois. When the main

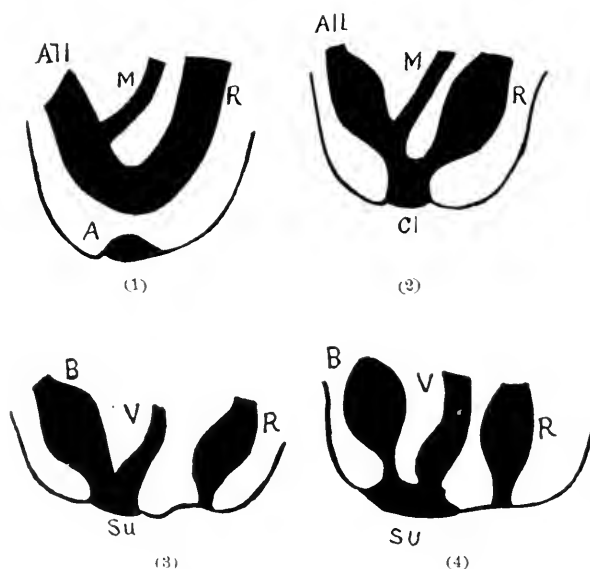


FIG. 4.—(1) Sixth week: R, rectum continuous with the allantois (All., bladder); M, duct of Müller, also opening into the allantois; A, depression of skin growing inward to form vulva. (2) Tenth week: depression has become continuous with rectum and allantois to form cloaca. (3) The cloaca is becoming divided into an anterior part, the urogenital sinus, into which the Müllerian ducts open, and a posterior part, the anus. There is a downward growth of tissue between the hind gut and the allantois. (4) The perineum is formed, the vagina beginning to be distinct. The urogenital sinus contracts at its upper part to form the short urethra, the lower part remaining as the vestibule, into which the vagina also opens. (From SCHRÖDER.)

part of the allantois shrivels, the stalk persists; its upper part becomes the bladder, the lower portion constitutes a tube into whose upper portion opens the Wolffian or Müllerian ducts, while the lower end unites with the rectum to form a unique excretory channel, analogous to the cloaca of reptiles and birds, and called, in fact, the cloaca. At ten weeks the sinus becomes

separated from the rectum by a septum, and the latter is, in the female subject, itself divided into two tubes, an anterior tube or the urethra, a posterior or vagina. In the male the urogenital sinus persists through life as the urethra, which receives at its upper portion the excretory genital duct, and continues therefore throughout life to fulfil a double function, the genital and the urinary (see Fig. 4—1, 2, 3, 4).

Thus the urogenital sinus prolongs itself from the body cavity of the embryo into the mass of structures which develop from little elevations of the epiblast at the caudal extremity of the body. From a tubercle, called the genital tubercle, arises in the female the clitoris, in the male the homologous but so much more voluminous penis. The clitoris remains anterior

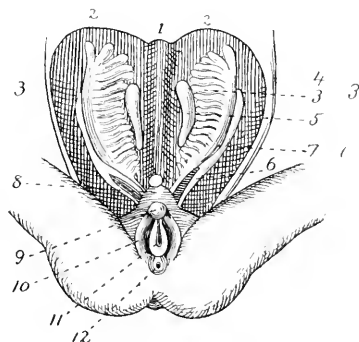


FIG. 5.—Rudimentary sexual organs. The internal at the seventh week of fetal life; the external organs belong to a later period. 1, spinal column; 2, 3, Wolffian bodies; 4, gland destined to become the ovary in the female, the testicle in the male; 5, Wolffian duct; 6, filaments of Müller; 7, bladder; 8, tubercle forming the rudiment of either the clitoris or the penis; 9, folds destined to form the labia majora in the female, in the male the scrotum; 10, sinus urogenitalis; 11, anus. (Lusk, from LUSCHKA.)

to the urogenital sinus and isolated from it. The tissue of the penis grows so luxuriantly as to entirely surround the sinus, which is the more easily done as the evolution of the sinus is much more restricted than in the female. The genital folds, originally separated from each other by a furrow (the so-called genital furrow), develop into the labia of the female, the scrotum of the male, the furrow itself becoming the raphe of the scrotum when the folds unite, remaining as the vulvar orifice when the folds remain separated (see Fig. 5).

Thus it is eminently exact to describe the genital apparatus as divided into three segments, each independent in origin, inde-

pendent in evolution, and possessed therefore of a possible independence of pathological history.

Hence no certain inference can be drawn for abnormal cases from the sequences of normal development, for there is no evidence that these sequences indicate causal relations. For instance, it might seem plausible to assume that the more luxuriant development of the external segment in the male sex was conditional upon the atrophy of the Müllerian duct which normally accompanies this. Cases like that of B. M. show, however, that, whatever may be the usual sequence, arrest of the development of the Müllerian ducts does not necessarily effect a transfer of nutritive force and material from the middle to the external segment. For in this case, as in the others like it, the Müllerian ducts may completely atrophy and yet the external segment retain superficially an entirely feminine type. Indeed, records of malformations show that it is quite impossible, from the existence of any one organ of the sex apparatus, to infer positively that any other will be present, or, what is still more remarkable, to infer with certainty the sex of the individual. The lucid doctrine of the three independent though normally coalescing segments of the sex apparatus helps to explain these pathological confusions by showing that the genital apparatus does not consist of a unique mechanism liable to injury, but of a group of organs liable to be confused, and confused in the most various forms of abnormal combinations with one another. Thus there may be :

Absence of the uterus with rudimentary development of the external genital organs (atrophy of middle segment, imperfect development of external segment).

Absence of uterus with hernia of the ovaries.

External organs ambiguous and rudimentary, internal organs masculine.

External organs ambiguous, habitus masculine, nature of deep gland uncertain.

External organs masculine, internal feminine, habitus feminine.

External organs feminine, internal masculine.

Middle segment of generative organs bisexual, external masculine.

Bisexualism of the three segments.

Simple absence of the uterus—*i.e.*, without other defect—is, as

already noted, a relatively frequent malformation. Two cases related by Chadwick fairly illustrate the whole class:

Woman of 22, married since 18. Had never menstruated, but suffered with regular menstrual molimina since the age of 14. The labia, mons, and clitoris were normal. The pseudo-vagina ended in a blind pouch one inch from the entrance. By recto-abdominal palpation impossible to find any trace of uterus or ovaries, and a sound inserted in the bladder pressed directly on the rectum.

The subject of the second case was 28 years old, unmarried, free from menstrual molimina, and enjoying excellent health. The labia, mons, and clitoris were fully developed, but there was no trace of a vagina, while the urethra (?) was so patulous that the little finger passed easily into the bladder, yet there was no incontinence of urine. The uterus was represented by a small nodule the size of a bean.¹

The foregoing case closely resembles that of B. M. The "patulous urethra" was, as in the latter case, really the urogenital sinus, and the urinary continence was due to the development of a vesical sphincter at its normal situation at the bladder, thus to the existence of the usual conditions which habitually prevent incontinence.

In a case related by Werth,² a girl 22 years old, who had never menstruated, suffered nevertheless from monthly paroxysms of pain which radiated from the abdomen to the sacrum, and finally from intense pains in both groins, where lay, on each side under the skin and exactly in the direction of the inguinal canal, a body the size of a pigeon's egg. These bodies, when extirpated, proved to be swollen ovaries, containing follicles and numerous cicatrices, and one, a recent corpus luteum. But notwithstanding this development of the genital gland the uterus and vagina were entirely lacking. The external genitals were well developed, though covered with little hair. A shallow cul-de-sac lined with mucous membrane, but not more than five millimetres deep, represented the opening to the vagina. A broad pedicle supported the ovary, continuous with a fleshy cord which terminated in a well-marked infundibulum. At the bottom of this a fine opening established communication with the peri-

¹ Annual meeting Suffolk District Medical Society, Boston Medical and Surgical Journal, April 24th, 1886.

² Archiv für Gynäkologie, Band xii., 1877.

toneum. The broad pedicle was the upper part of the broad ligament, entirely converted into mesovarium. On each ovary, moreover, lay in the median line a cylindrical muscular mass, seeming to be either a remnant of Müller's duct or a round ligament. The mass consisted of smooth muscular fibres held together by loose connective tissue and without admixture with striated fibre. Nevertheless the author considered these to be muscular layers from the uterus spread out under the peritoneum. A final anomaly in the case consisted in the descent of both kidneys.

Thus the kidneys had failed to ascend to their normal position, the ovaries had descended in excess of theirs; coincidentally Müller's ducts had been destroyed throughout their middle segment, leaving intact on each side only the extreme upper end, the infundibulum, and a part of the lower end, the rudimentary uterine horn.

Werth claims that there is a rather frequent coincidence between errors of place of the kidneys and ovaries, and hernia of the latter with absence or rudimentary development of the uterus. Englisch notes this coincidence five times in twenty-four cases of inguinal ovarian hernia. Puech, in seventy eight cases of ovarian hernia, found the uterus absent fourteen times, uterus bicornis four times, while the subject was said in thirteen cases to be hermaphrodite.

Nicaise¹ is quoted as authority for a case which was almost the exact counterpart of Werth's own case. The uterus was represented by some lamellæ of muscular tissue a few millimetres thick spread out upon the ovaries, which, on each side, lay at the entrance to the inguinal canal.

What may be the connection between these different and profound anomalies is as unknown as the nexus, if any, which unites other malformations of the different segments of the genital tract. The malformation in which the ovaries disappear with the uterus contrasts with the foregoing, where the ovaries, through excess of descent from their original position, have become displaced.

Hanff² relates such a case, where an autopsy was performed on a woman of 51 who had died of small pox. She had first been seen at the age of 20 on account of the non-appearance of menstruation, and was then found to have the external genitals

¹ Gazette médicale, 1875.

² Schmidt's Jahrbücher, 1873, Bd. clviii.

small and undeveloped like those of a 10-year-old child. The autopsy, thirty years later, demonstrated the entire absence of ovaries and tubes, but, singularly enough, a rudimentary uterus. Here the blight seems to have begun at the deepest segment, the genital gland, and extended downward, being least complete at the lower extremity of the middle segment, where the Müllerian ducts should fuse to a uterus.

The next class of cases illustrate the effect of an arrest of development in marked contrast with the foregoing, in that it principally involves the lowest or external genital segment. The genital gland is masculine; the external organs tend toward the masculine type, but are rendered ambiguous by their imperfect evolution from the stage of primitive indifferentism. This anomaly constitutes the pseudo-hermaphroditismus masculinus externus of authors.

Henrichsen relates the following case: The subject was a Russian, æt. 27, brought up as a girl and called Elizabeth Wulfert. She worked in the house, also in feminine field labor, where she was noted for her strength. When 21 years old she menstruated for two days, but never again. Menstrual molimina had appeared, however, since the age of 17, and were accompanied by a mucous discharge from the urethra. These phenomena recurred, not at exact monthly intervals, but every two or three weeks.

The external genital segment was represented by a hypospadiac penis, and at its base a urogenital sinus whose orifice admitted the little finger. The catheter entered this sinus five and a half centimetres, then could be turned into another canal six centimetres long terminating in a cul-de-sac. Thus there existed a rudimentary vagina or terminal extremity of the Müllerian duct.

A testicular gland lay in each inguinal canal.

The general physical habitus, and also the psychic nature, combined feminine and masculine attributes. Thus the hair on the mons veneris was of the feminine type, and the subject had no hair on the face, limbs, perineum, or around the anus. The mammæ were moderately developed, the voice was feminine, and yet the larynx had the prominence of the masculine type. Further, the thorax and pelvis were distinctly masculine. There was a moderate degree of sexual inclination toward either men

or women, but chiefly toward men. She called herself "a most unhappy creature, being neither a man nor a woman."¹

Pech relates the following case: Maria Rosina was, until her thirty-second year, educated as a woman. In her eighteenth year she had a right-sided inguinal hernia; in her twentieth year she had a painful menstruation. In her thirty first year a painful tumor the size of a hazelnut appeared in the left groin. An incision showed that this tumor consisted of a testicle and epididymis enclosed in a hydrocele sac. After this operation the subject was considered a man, was dressed and treated accordingly.

As in the case of Wulfert, the external genital segment was represented by a small hypospadiac penis, a urogenital sinus opening at its base and which led to two cavities, a bladder anteriorly, a second behind this, also lined with mucous membrane, and evidently a rudimentary vagina.

The cleft scrotum imperfectly imitated the labia majora, and on one side contained a testicle and epididymis.²

In Barbara Holm, described by Virchow,³ were repeated all the conditions of the cases related by Pech and Henrichsen. Yet, notwithstanding the masculine nature of the genital gland, the sexual instincts were feminine. In similar contrast the pelvis was masculine, the developed breasts feminine in type.

"These cases," observes Herrmann,⁴ "are related in great number. The subjects are essentially males, with imperfection in the development of the external organs, so that the penis is small and hypospadiac; there is a short urogenital sinus, into which open the lower extremities of the Müllerian ducts, the greater part of which have atrophied. The scrotum is divided by a cleft, so as to simulate the labia, while the cleft itself simulates a vagina and has not infrequently been mistaken for one. Arnold⁵ has collected twenty-seven such cases."⁶

The following diagrams, taken by Beannis from Ecker, indicate the progressively diminishing ambiguity of the external genital organs, and show how an arrest of development, though

¹ Virchow's Archiv, 1883.

² Arch. Gyn., Bd. xi.

³ Gesammelte Abhandlung, 1856.

⁴ Dictionnaire des Sciences médicales, 1888. ⁵ Virchow's Archiv, 1869.

⁶ Herrmann also cites: Avery, Phil. Med. and Surg. Reporter, xiv.; Wood, Trans. Anat. and Path., 1872; Czarda, Wiener med. Wochens., 1876; Marchand, Virchow's Archiv, Band xcii.; Werman, ibid., 1886; Schönberg, Berl. klin. Wochens., 1875.

limited to this segment of the reproductive apparatus, might irremediably confuse the distinctions of sex (Figs. 6, 7, and 8).

A predominantly masculine type to the external genitals, and even the presence of testicles, is compatible with a feminine habitus of body or with entirely feminine feelings and instincts, or with both. Thus Alexina B. was brought up as a girl until the age of 22, when she was pronounced a male by a court of law because possessed of a complete male genital apparatus—penis, though small and hypospadiac; scrotum with a testicle in the right lobe, the left testicle resting in the inguinal canal and apparently in fatty degeneration; seminal vesicles distended by sperm, which, however, contained no spermatozooids; rudimentary prostate. The misinterpretation of sex had been due

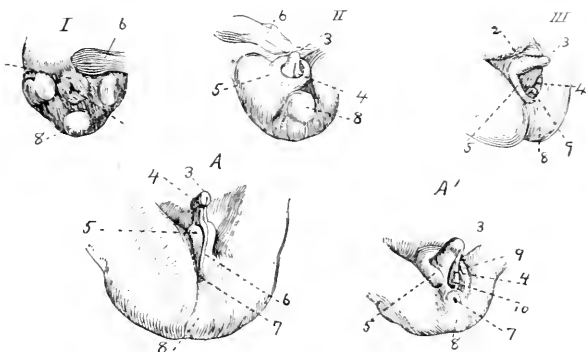


FIG. 6.—I, II, III represent the undifferentiated period—embryos younger than three months. A, masculine embryo, end of third or beginning of fourth month. A', feminine embryo of third month. 1, cloaca; 2, genital tubercle; 3, gland; 4, genital furrow; 5, genital folds; 6, umbilical cord; 7, anus; 8, coccygeal tubercle; 9, labia minora; 10, urogenital sinus. (BEAUNIS, from ECKER.)

to the presence of a central cleft in the scrotum, simulating a vagina and terminating in a cul-de-sac six and a half centimetres deep. The rectification of this mistake filled the subject with such despair that he committed suicide.¹

In Dohrn's case the external segment was more rudimentary and the sex even more ambiguous. The labia were well developed, the penis infantile, the vestibulum moderately deep and covered with mucosa, and below the urethral opening was a second, leading to a little cul-de-sac two centimetres deep, the only representative of a vagina. But the testicles were represented, though atrophied, by two bodies the size of beans, one at

¹ Goujon, *Journal de l'Anat.*, 1869.

the upper extremity of each labium, and double exploration by vagina and rectum failed to discover any trace of uterus, ovaries, tubes, or vagina.

This subject, 28 years old, was powerfully built, with large bones, a deep voice, and masculine breasts. But, on the other hand, she had long hair, no beard, a feminine expression of



FIG. 7.—B', masculine embryo at middle of fourth month; C', masculine embryo at end of fourth month (numerals as in Fig. 6). (BEAUNIS, from ECKER.)

face, entirely feminine feelings, and was betrothed to be married. Since the twentieth year she had suffered every four weeks from an attack of pain in the abdomen, but had no other symptom of menstruation.¹

When feminine organs distinctly coexist with masculine in any of the generative segments, a feminine habitus or psychic

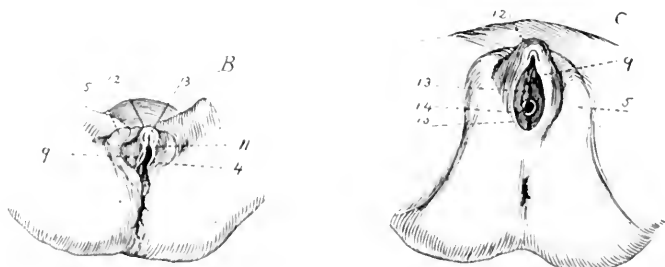


FIG. 8.—B, feminine embryo at middle of fifth month; C, feminine embryo at beginning of sixth month (numerals as in Fig. 6). (BEAUNIS, from ECKER.)

character seems less surprising. Thus, in the case reported by Martin, a girl of 19 who had never menstruated had a right inguinal hernia, which was submitted to operation. A body, supposed to be an ovary, was found and returned to the abdominal cavity. At 20 a similar swelling occurred on the left side. This was found to be a testicle, with a well-marked gubernacu-

¹ Dohrn, Archiv für Gynäkologie, Band xi.

lum passing into the left labium majus. The peritoneal cavity was opened and search made for a uterus, but none was found; on the other hand, a vas deferens was discovered. Imperfect spermatozoa existed in the genital gland. The labia, clitoris, and vestibule appeared quite normal. A cul-de-sac three-quarters of an inch deep represented the vagina. The girl was entirely feminine in appearance and feelings.¹

In the case related by Virchow and Litten,² a girl of 14, the external sexual organs looked masculine except for a small central opening along the raphe of the scrotum. There was a rather large though hypospadiac penis. But when the peritoneal cavity was opened in an operation for a malignant cystosarcoma, a uterus was found, with a left tube and left ovary. The right tube and ovary were rudimentary, and from this tube sprang the malignant tumor, to the operation for which the subject succumbed. The aorta was extremely narrow, and there were anomalies of the upper intercostal arteries. The subject was entirely feminine in appearance and tastes, and from the age of 14 had menstruated regularly until the epoch of the development of the tumor. The authors remark that the feminine capacities were complicated by a facility in arithmetical calculation quite surprising in a peasant girl. Her bearing had always been remarkably serious and modest.

In another class of cases the external genital segment has assumed a more distinctly feminine type, but the deep segment, the gland, is masculine. The interpretation of sex as feminine has been supported by plausible appearances and reinforced by the social training based upon these. Such a case is described by Abel.³ The individual was 33 years old, had always been considered a woman, and was engaged to be married. Since the age of 20 she had menstruated regularly every four weeks. The external genitals, however, were like those of a 12-year-old girl. A little tumor at the end of a short vagina constituted the residue of the portio vaginalis. In the right inguinal canal lay a movable body, 5.7 centimetres long, resembling a testicle and epididymis, and demonstrated to be such by histological examination made after the death of the patient. A sarcomatous tumor had developed in the abdomen from this tes-

¹ Martin, *British Gynecological Journal*, May, 1894.

² Virchow's *Archiv*, 1879.

Virchow's *Archiv*, Band cxxvi., 1891

ticle, and the patient succumbed to the operation undertaken for its removal.

Thus both the Wolffian duct and the Müllerian had been arrested in their development, except in the lowest extremity of the latter, where the two Müllerian ducts had fused into the rudimentary vagina and portio. The urogenital sinus had deepened and become divided by the normal septum, so that the urethra was separated from this vagina.

The monthly hemorrhages which simulated menstruation in the case of this individual presumably occurred through the vagina, but the author offers no explanation of their origin or nature. No ovaries seem to have existed.

Similar monthly hemorrhages existed in the famous case of Katharina Holman, frequently described, and especially by Prof. Friedreich in 1869.¹ Besides these hemorrhages Katharina offered the feminine characteristics of large mammary glands and long hair, but in most other respects seemed to be a man with a hypospadiac penis and a testicle in the right scrotum. The habitus, voice, osseous and muscular systems were masculine in type. Hair grew on the lips and chin, the larynx was large, the voice deep, the respiration diaphragmatic. Sexual relations were sustained with both men and women.

In other recorded cases the deep genital segment is bisexual, represented by an ovary on one side and a testicle on the other, but the external segment is masculine. Such was Messner's case, where monthly hemorrhages occurred regularly from the urogenital sinus, attended by severe menstrual molimina. Yet the external genitals were masculine except for the hypospadias; a testicle protruded on the right side beyond the inguinal canal, lying close against the penis, though unprovided with a true testicular sac; and there were emissions of spermatic fluid containing spermatoblasts. The subject had been married as a man, and was *said* to have had a child. But he had no beard, the breasts were large and hanging, the body slender like a woman's, the pelvis feminine in type; an ovary seemed to exist on the left side of the penis, corresponding to the testicle on the right, and examination per rectum, which failed to discover a prostate, detected a small body in the pelvis on the right side which seemed to be another ovary.²

¹ Virchow's Archiv, 1869.

² "Ein neuer Fall von Hermaphroditismus verus." Messner, Virchow's Archiv, Bd. cxxi., 1892.

In Willett's case a man (?) who had died of cerebral hemorrhage, and who had a well-developed penis, so that no doubt had ever arisen about his sex, was found at the autopsy to also possess a well-developed uterus and vagina. There were two testicles, shown to be such by microscopical examination, provided with vasa deferentia which passed down by the sides of the vagina toward the prostatic division of the urethra. The vagina narrowed as it perforated the prostate, and opened in the usual situation of the uterus masculinus. From the uterus on each side proceeded a closed Fallopian tube, which terminated above the globus major of the epididymis in a body representing the usual hydatid of Morgagni. The subject had a beard, was married, and said to have had two children.¹

In Willett's case the presence of testicles was held to prove the subject a man, notwithstanding the feminine complication of the middle segment—*i.e.*, the persistence of the ducts of Müller and their development into Fallopian tubes, uterus, and vagina.

Herrmann quotes a case, related in 1820, where not only a uterus and vagina but also ovaries were found in the body of a supposed man. This individual at birth was baptized as a girl, but when 4 years old was pronounced a boy by a surgeon and thenceforth was dressed and brought up as a boy. He never menstruated, and always lived like a man, holding sexual relations with women. His tastes were all masculine, as also the general habitus of his body—broad shoulders, abundant beard, and undeveloped breasts—but broad pelvis and delicate extremities. The scrotum was represented by longitudinal folds; the urethra opened on the side of the penis. A vagina opened on the veru montanum, and led to a well-formed uterus with two complete tubes and two ovaries containing a few follicles. The vagina was surrounded by a well-developed prostate gland. Ejaculating canals opened on each side of the vaginal orifice, the left ending in a cul-de-sac twelve millimetres long, the right very short.

Here, then, by local anatomical tests, was a woman whose sex had been masked by the imperfect development of the external genital segment and by a completely masculine habitus. In the following case the individual was predominantly a man, but had been brought up as a woman. The face was bony, with an abundant beard; the throat thick and short; the thyroid promi-

¹ British Medical Journal, 1894, i., 301.

nent; shoulders square; breasts absent; pelvis narrower than shoulders. To these physical details the writer adds certain psychical characters inferred, perhaps too positively, from the dress of the subject: "He (or she) wore her clothes queerly: the breastpin was askew, the belt went up more on one side than the other, the flowers and ribbons on the hat were negligent and in bad taste."¹

Locally there was the usual hypospadiac penis of pseudo-hermaphroditism, and an irregular space behind in which existed four depressions. Two of these were lateral, very small, and hidden in longitudinal folds; one posterior, constituting a rudimentary vagina fifty-five to sixty millimetres deep, five to seven millimetres broad; one anterior, at the base of the penis and leading into the urethra. The vulva was replaced by a scrotum with an undefinable nucleus on the right side, while on the left a testicle lay in the inguinal canal.

The sexual instincts of this anomalous male being were directed toward men, not women—a fact which leads the author to remark that hermaphrodites and pseudo-hermaphrodites are *degenerates*, psychically as well as physically.

Among the foregoing cases, which we have cited only as illustrations taken from among the large number on record, only in Messner's and possibly also Martin's cases is it said that a testicle and ovary coexisted. The other cases show maladjustment of the different genital segments to each other or to the general physical or psychical habitus of the individual, so that testicles coincided with an apparently feminine type of the external segment;² or, on the other hand, uterus, vagina, tubes, and even ovaries were found in a person who from external appearances had been considered a man;³ or a total arrest of development of Müller's ducts had not been followed by correlative changes in the external segment, which retained superficially a feminine appearance, though the urogenital sinus replaced a vagina.⁴

The primitively indifferent⁵ or primitively bisexual⁶ character of the genital ridge which is destined to develop into an ovary or a testicle permits the occasional development of both

¹ Guérmonprez, *Journal des Sciences médicales de Lille*, 1892, 7, ii.

² Cases of Abel, Martin.

³ Case of Virchow and Litten.

⁴ Case of B. M.; also Chadwick's cases.

⁵ Minot, "Human Embryology," p. 85.

⁶ Tourdes, *Dict. encyclop.*, art. "Hermaphroditism."

sexual glands in the same individual. We have cited the case by Messner, which, however, was not demonstrated by autopsy. Here the error of development lay in an asymmetrical modification of the genital ridge on the two sides of the body, so that one became an ovary, the other a testicle. Herrmann summarizes eleven such cases. The same author cites in detail the much rarer anomaly where a testicle and ovary are found on each side of the pelvis, proving that the bisexual potentiality of each primitive ridge has been actualized. Both primitive ova and seminiferous tubules have formed, but in different parts of the ridge, and the male and female portions have been separated from each other. This constitutes bilateral hermaphroditism, of which Herrmann cites in detail three cases. The first, described in 1854 by Vrolik,¹ was an individual 58 years old. On the left side of the pelvis were an ovary and rudimentary testicle undescended. On the right both glands occupied the inguinal canal. There were no canaliculi in the testicle, but cysts filled with a liquid resembling sperm. The ovaries were composed of connective tissue and deprived of follicles. There was a uterovaginal canal surmounted by two Fallopian tubes terminated in culs-de-sac. Externally the penis was hypospadiac.

The second case quoted is reported by Müller.² The individual was 36 years old, possessed a penis through which he menstruated regularly, two testicles, and a prostate gland. But he had also a vagina, uterus, permeable tubes, and two ovaries.

The third case is from Heppner.³ The urogenital sinus opened below an imperforate penis and continued directly with the urethra. On its posterior face opened a vagina two centimetres long, terminated by an infantile uterus, two permeable tubes with pavilions, and on each side an ovary and testicle, between them a parovarium. A prostate gland surrounded the urethra and vagina.

The ovaries contained Graafian follicles, the testicles contained canals filled with cells and nuclei. The external genitals were generally masculine in type.

"There could be no doubt of the true bisexuality of this individual," observes Herrmann.

¹ Dictionnaire encyclopéd., 1888, art. "Hermaphroditism."

² Canstatt's Jahresbericht, Bd. iv., 1854.

³ Reichert's Arch. für Anat., 1870.

Malformations of the genital organs have always excited a romantic interest which does not attach to malformations of any other kind. They are the only class, except malformations of the brain and cranium, whose influence is supposed to extend to the psychic individuality, and the influence is even more bewildering to the imagination than that of brain defects. These latter, it is understood, must limit the range of an individuality and cripple its capacities; but malformation of the genital organs seems to threaten the fundamental basis of individuality. The capacity for reproduction, common to all living beings, only exists in an undifferentiated form among the lowest grades of animal life. From the moment sex differentiation appears in the scale of life, every individual is born of one sex or the other; it seems to be as impossible to think of a mammalian animal with abstract reproductive faculty, as to imagine the actual existence of an abstract tree which should be neither a beech, nor an oak, nor an elm, nor any other specific kind of tree.

This is the impression derived from ordinary experience. Nor is it necessarily dissipated by the more minute observations of embryonic life, which show that for the first seven or eight weeks after fecundation the sex of the human embryo cannot be distinguished. The steady march of the developmental process along definite lines, for which in millions of cases—the almost infinite majority—there are only two alternatives, implies that the process is controlled by an impulse which started from the moment when cells of opposite sex conflicted in the germ, the epoch, namely, of fecundation and the immediately subsequent period. While yet, therefore, so minute as to appear little more than a simple cell, it seems probable that the mammalian, the human organism, is already sexually differentiated. The subsequent unfolding of sex characters, the specialization of sex organs, are not the result of mutual correlations established during the process of development, but of the original impulse given during the fusion—the nutritive conflict of the masses of protoplasma contained respectively in the sex cells.

The fact that the human germ, while still so minute as to seem little more than a single cell, is probably already sexually differentiated; and perhaps, also, the fact that the most fruitful modern researches on sex have been pursued among the lowliest forms of animal life, seems to have lent a fanciful coloring to the scientific dissertation of even sober naturalists.

Thus Geddes and Thompson summarize their brilliant essay as follows: "We have seen that a deep difference in constitution expresses itself in the distinctions between male and female, whether these be physical or mental. The differences may be exaggerated or lessened, but to obliterate them it would be necessary to carry out the entire evolution over again on a new basis. What was decided among the prehistoric protozoa cannot be annulled by act of Parliament. . . . We must insist upon the biological considerations underlying the relation of the sexes, which have been too much discussed by contemporary writers of all schools, as if the known facts of sex did not exist at all, or almost as if these were a mere matter of muscular strength or weight of brain."¹

The reader who should chance to light upon this paragraph first would naturally turn over the preceding pages of the essay with a keen interest, to ascertain *where* this "deep difference in the mental constitution of males and females had been seen" or demonstrated. But he would search in vain. The demonstrations in the essay all relate to reproductive cells, in which, as in the "prehistoric protozoa," mental constitution can only be ascribed in prophecy or by an amply generous figure of speech.

According to the authors' own theory, the fundamental distinction of sex is that between nutritive anabolism and nutritive katabolism. The female cell—the ovum—is large, quiescent, and endowed with a nutritive surplus; the male cell—the spermatozoon—is small, active, and on that very account relatively deficient in nutrition, waste exceeding assimilation and attending the evolution of kinetic energy. The union of reproductive cells is analogous to the flowing together of exhausted cells from the liquid contents of the body cavity of the sea-urchin;² the male element seeks the female to repair its own nutrition.

The foregoing observation can hardly be disputed, for it is little more than a comprehensive generalization of innumerable facts. The originality and value lie in the suggestion that the entire contrast of sex lies in this contrast between destructive and constructive nutrition; that the very essence of sex differentiation is the difference between katabolism and anabolism; and that the impulse leading to sex union is an impulse for nutritive repair.

¹ "Evolution of Sex," 1890, p. 267. Contemporary Science Series.

² Geddes and Thompson, loc. cit., p. 150.

But a primitive attribute, though suggesting analogies for the future, is very far from really extending throughout the entire range of complex conditions which unfold from the original one. The assumption that it does so is precisely the error of the naturalists who maintained the celebrated doctrine of the preformation of the entire adult organism in the germ. The sexual differentiation of size, upon which Prof. Geddes lays great stress, although holding among some protozoa, and even many classes of invertebrate metazoic animals, is exactly reversed among vertebrates, where the male is invariably the larger animal. According to Prof. Geddes the spermatozoon or antheroid cell is small *because* it is active; but the male vertebrate animals are not only active but large. Their activity does not serve to diminish their size, but rather seems to increase it.

The females, on the other hand, at first sight seem to sustain the original character of the ovum; for an abundant nutritive capacity, in excess indeed of the needs of the individual organism, is essential to their capacity for reproduction. But as they are at the same time inferior in size to the males, and destitute, moreover, of many ornamental accessories, generally epidermic or pigmentary, which are markedly characteristic of the male sex, a nutritive balance is presumably struck through such differentiations. What the male accrues to himself the female expends on the young.

Further, except during the breeding period, there is no difference between the motor activity and little or none between the muscular strength of the sexes of most vertebrate animals below man. Much greater contrasts reappear in the human race, and, to a lively imagination, may seem to revive the contrasted attributes of the primitive sex cells. The menstrual hemorrhage indicates a permanent excess of reproductive nutrition outside of breeding epochs, or rather is an indication that in the human female reproduction is always possible—a condition to which only that of domesticated animals approaches. The greater vital resistance and greater average longevity of women, and the preponderance of female births under circumstances of luxuriant nutrition, are facts which may also be alleged to prove the excess of anabolism in all females, who thus repeat the character of the female sex cell, the ovum.

In the human race, however, even more conspicuously than in

the lower vertebrates, is the element of size exactly the reverse of what it should be according to Prof. Geddes' theory. With an equal apportionment of nutritive force between the sexes, the lesser size of the skeleton, muscular system, nerve centres, and viscera would leave to the female a surplus which might be expected to cover the reproductive expenditure, without the assumption of any special "anabolism." The habitual excess of adipose tissue in women indicates storage in excess of expenditure; but it certainly does not indicate excess of nutritive force, either for reproduction or for the essential, the nervo-muscular organs of the individual.

On the whole it would appear that sex differentiation does not concern the quantity of nutritive force, but only its direction. The anabolic potentiality of the female organism is realized during pregnancy, but only then. The menstrual wave of reproductive nutrition traverses the organism constantly, but only utilizes material which that organism economizes by failing to appropriate to its own amplification. The human female resembles the animal ovum, not permanently, but discontinuously, and at the epochs, limited in number, when every other function is really dominated by the function and attribute of sex, the epochs, namely, of pregnancy.

The third contrast between the sex cells, between quiescence in the ovum and motility in the spermatozoon, is more plausibly paralleled in the human species than in any vertebrates lower than man. Relatively to the mass of men, the mass of women may be called quiescent, and habituated to less, and to less explosive discharge of kinetic force. Evidently, however, this fact is not due to the same conditions as obtain in the sex cells. For, according to the theory, the male cell discharges kinetic energy *because* its nutritive movement of decomposition predominates over the movement of assimilation, and the female cell remains motionless *because* its nutritive processes are reversed. But in human beings, since the greater bulk goes with the greater energy, the source of such energy cannot be found, as the theory demands, in an economy of size. Extensive katabolism implies that a correlatively abundant anabolism had preceded; material must have been stored before it could have been decomposed; the greater nervo-muscular energy of men implies, not less, but more intense nervo-muscular nutrition, and indeed is conditional upon this. Similarly, if women exhibit

less of such energy, the deficit cannot be explained by the assumption that they are more highly nourished, but, on the contrary, that their nervo-muscular system has a less vigorous nutrition. The causes of this deficit are various, and many are obvious enough. Among the less obvious, and the most fundamental, is very possibly the necessity imposed on the brain of regulating the permanent diversion of a certain quantum of nutritive material and force to the service of reproduction as expressed in the menstrual process. The occurrence of this process in the human race,¹ and in that alone completely, is perhaps one reason for the immensely greater difference which has here obtained between the sexes at high levels of civilization, and where small increments of original difference have multiplied by social accumulation. The function of the brain in menstruation is demonstrated by the mutual influence on each other of this process on the one hand, and emotions, insanities, and the neuropathic constitution on the other.

In these complex situations and processes of adult human life the simple contrast between the simple attributes of the sex cells is reversed, contradicted, lost sight of over and over again. There remains scarcely an analogy even by poetic license, still less an identity of character, persistent in the same individual, simply unfolding and always identical with itself.

The reason is obvious. No individual produced by the union of cells of opposite sex can possibly continue exclusively the attributes of either, for as a condition of its existence it must contain the attributes of both, its own sex being determined simply by the predominance of that of one or the other of its progenitors. "At the moment of fecundation," observes Le Gendre, "the embryo is hermaphrodite, but it is generally assumed that the epoch of hermaphroditism is terminated by the regular development of the sexual organs. But, as the entire constitution offers a different character according to the sex, the idea of hermaphroditism may be extended to the entire constitution. *In this sense every individual is hermaphrodite, not only in his sexual organs [i.e., originally], but in his entire constitution.*" Further, in virtue of this hermaphroditism of his whole constitution, every individual is a compound of two fac-

¹ The menstruation of the monkey involves the disintegration of the uterine mucosa, but only a trilling hemorrhage. See Walter Heape, "The Menstruation of *Semnopithecus entellus*," Phil. Trans., Lond., vol. clxxxv., 1894.

tors, of which one offers the type actually realized, the other the latent or virtual type. The conflict between the two types lasts the whole lifetime."¹

It is indisputable that the embryos of vertebrate animals contain originally elements for the reproductive organs of both sexes, and this primitive bisexuality is very conspicuous in the human being. The table cited from Tourdes on page 513 indicates the complexity of the reproductive apparatus, the independent origin of each of its parts, and the sexual indifferentism in which all begin. It would be clearly impossible to apply to each of these numerous organs the criteria of sex established for sex cells in organisms that comprise little else—namely, anabolism or katabolism, size, quiescence, or motility. The ovum is definitely recognized among lower forms of life by being the locus of the developmental process, the place where the germ unfolds. In complex organisms it is not the ovum but the ovary which has to be considered, and the locus of development is transferred from the ovary where the ovum originates but where it is not fecundated, to the uterus where embryonic growth takes place. The sex criterion is thus split in two: it becomes impossible to tell whether it be the ovary or the uterus which "determines" the sex of the organism. However often the assertion has been made, it is still not true that "a woman is a woman because of her uterus or because of her ovaries." Individuals are found, with all the appearance of women, who have either been deprived of ovaries or uterus or have never had either or only in the most rudimentary form. Precisely because sex character has been stamped upon the entire germ, from the moment the conflict of its two generating factors has been decided, must we expect to find this character extended over a large area of the organism into which this germ develops. But with the extension into many organs the unique character of the original element cannot fail to become multiple. In other words, *not sex, but sex characters, are to be ascribed or looked for in a complex organism which is the product of sexual reproduction. The sex is not due to any one character nor to the existence of any one organ, but to a consensus between many. The elements of the organism meet and combine into unity, but wherever the unifying power may be it does not reside in any one of these elements.*

¹ Traité de Path. Gén. par Bouchard, t. i., p. 283, 1895.

The organs, processes, or peculiarities which must be called sexual are such as either condition reproduction, or facilitate it directly or indirectly, or have become habitually associated in the organism with one set of sexual organs and not with the opposite.

Under the one or the other of such headings must be ranked the generative organs proper; the bodily habitus; the skeleton; the contours of thorax, pelvis, and limbs; the larynx; the modifications of skin and epidermic structures; such physiological processes as the ripening of germ cells of different kinds, and menstruation; a reproductive instinct exclusively directed toward individuals of the opposite sex; and certain mental attributes, as modesty and timidity in the one sex, or courage and combativeness in the other.

These psychic peculiarities—among which must be classed the unisexual instinct—imply the extension of sex character to the brain as well as to other parts of the body remote from the generative organs.

This multiplicity of sex attribute, which replaces the simplicity of character of the sex cell, already *suggests the possibility of internal dissociation and of various combinations between multiple elements*. This possibility is increased by the multiple origin of the organs which exhibit a sex character. Even the genital organs have a different embryological origin for each of the three segments into which they have been classified. Development of the genital organs starts from five different centres—the genital ridge, the Wolffian body, the double excretory duct, the stalk of the allantois, and the caudal epiblast. Development of sex attribute starts from as many centres as there are organs exhibiting sex attribute, and, as seen, these include all organs of animal life and a part of the brain—everything, indeed, except the viscera.

The first impulse of distinct sexual development seems to be exhausted at the end of the third month of intrauterine life, by which time the three segments of the genital organs have each acquired their distinct and definite character. The rest of the body has no sexual type during infancy or early childhood. This period of life repeats the neutrality or bisexuality of the earliest embryonic existence. It is incorrect to call childhood a third sex, for sex is a necessarily dichotomous division of organism. But preliminary absence of sex, accompanied by latent

sexual potentialities, is possible, and the possibility is realized during this epoch. The subsequent development of general (so-called "secondary") sex characters, physical or psychical, does not show that these are due to the influence of the sex organs whose character has already been acquired, any more than the character of any one genital segment can be attributed to a morphological influence exercised by either of the others. The sex character is, from the time of the germ, latent in each tissue destined at any time to exhibit such character. The inequality of the intervals at which the diverse sex attributes become manifest parallels the inequalities of epoch at which pathological diatheses, also impressed on the germ, first make their appearance. In both cases it seems necessary that a definite series of changes shall have been effected in the organic tissue before a given change can take place, which nevertheless is certainly foreboded at the very beginning of the series. We are so accustomed to the practical operation of this mysterious law that its occasional failure strikes us as much more remarkable than does its almost constant fulfilment. It would be considered a marvel for a baby to be born with a beard, but no surprise is felt that at approximately the same epoch after birth the bony framework of the child's body should begin to assume a different contour, according as it is destined to grow into a man or a woman. Nor are we astonished that this change should long precede the development or functional activity of the sex organs with which it is nevertheless specially correlated.

Sex attribute therefore, in complex organisms, is not simple, but multiple, and, owing to the different origin and line of evolution of each of the elements of sex attribute, it becomes occasionally possible for the latter to lose its seeming unity and become confused through internal dissociation of its elements, their abnormal combination with one another, or even their partial loss. Simple transmission of a single sex character is only conceivable with parentage of a single sex—that is, in cases of parthogenesis. The sex of every organism due to sexual reproduction expresses merely the final preponderance, the net result, the balance struck after the opposing characters of two really differentiated cells have become more or less blended with one another, or have so conflicted that the character of one of the cells shall have become obliterated. It is evident that this blending of sex as of other character, may be more or less com-

plete. Dissociation among the elements of sex attribute results in the various forms of hermaphroditism. Imperfect blending of the sex cells, the imperfect triumph of the one or the other, allows sex characters from each to persist in the germ. Hence the ultimate coexistence in the adult of a double set of genital organs, each usually imperfect, mingled characters of bodily habitus, double physiological processes, contrary or even double sexual instinct.

The persistence of menstruation in male (pseudo?) hermaphrodites does not necessitate search for a fragment of an ovary to account for it. Ovulation is an essentially ovarian process and cannot be sustained in the absence of an ovary bearing follicles and ova. But the menstrual flow depends on a profound constitutional habit of nutrition, which diverts for reproductive purposes such excess of anabolism as the male organism is accustomed to appropriate to its own ornamental use. It is therefore an element of sex attribute, early stamped upon many tissues, and perhaps especially upon those of the nervous system. Like other elements of this attribute, it may, through profound germinal perversion, remain associated with elements of masculine sex whose presence is ordinarily attended by its own suppression.

The dissociation of sex attribute may vary both in extent and in locality. It may remain localized to the segments of the genital organs; but conversely it may affect the brain exclusively, and either dissociate the sex instinct from the organs to which it belongs, or preserve a moral hermaphroditism to which no physical conformation corresponds.

If sexual perversion and "*contrare sexuelle Empfindung*" be regarded as examples of hermaphroditism limited to the psychic sphere, or to that together with some modification of the bodily habitus,¹ it must be admitted that this form of organic malformation is far more common than the physical kind. Accepted as a mark of psychic degeneration, its relation to physical hermaphroditism has not, that I know, been generally so recognized.

The wide extent of sex attribute over the different organs of a complex organism, and its expression in their various functions, does not imply that the entire organism is stamped with

¹ Théophile Gautier's famous romance of "*Mademoiselle Maupin*" is an extraordinary literary study of such perversions.

sex. Even the sex cells of the higher animals, and especially in the human race, contain elements which escape the primitive sex domination. It is not only possible but common for the child of one sex to inherit the color of hair and eyes, and more especially the pathological liabilities and the psychic character, from the parent of the sex opposed to its own. Upon the viscera can be detected no stamp of sex other than that of size, necessitated by the size of the body cavities they occupy.

Similarly, the processes of organic or vegetative life have no qualitatively sex peculiarities. The slight differences in circulation, respiration, etc., which have been observed are quantitative variations necessitated by differences in body, size, and activity. The profound nutritive difference indicated by the different distribution of nutrition—the potential preponderance of anabolism of the female—is the most characteristic sexual attribute of the vegetative life of the human organism.

This is the circumstance upon which Geddes relies to ascribe an exclusively sex character to the entire human female—that is, to all the organs, functions, and processes of her complex organization. Without hesitation such sex character is extended to the brain, and various psychic characters are predicated of woman as peculiar to her sex which really have no relation to sex functions, or which rather preponderate, if at all, in the opposite sex, and which cannot be deduced either from any known anatomical peculiarity of the brain or from any of the accepted criteria of sex in other attributes.

Thus: "The feminine passivity is expressed in greater patience, more open-mindedness, greater appreciation of subtle details, and consequently what we call more rapid intuition. . . . Man thinks more, woman feels more. He discovers more, but remembers less; she is more receptive and less forgetful."¹

What possible connection can there be between "greater patience" and "greater anabolism," which the author had previously established as the distinctive characteristic of sex? There is no proof that "women feel more than men"; and if all feeling be evolved from the emotionality attendant on the primitive sexual instinct, the greater masculine intensity of the latter, even in the animal world, would lead us to expect the

¹ Loc. cit., p. 271.

precise reverse of this statement.¹ "Patience" means, in one aspect, tenacity of purpose: "appreciation of subtle details" is the basis of scientific investigation. It is customary, in other generalizations analogous to the foregoing, to deny both of these capacities to woman, as contrary to her sex character. Both affirmation and denial are equally irrelevant, because, whether true or not of any particular percentage of women, the attributes cannot be regarded as sex characteristics. Unlike even the most superficial secondary sex characters of bodily structure, such mental attributes are not limited to either sex, but unquestionably exist in both; they could never serve, like the comb of a cock or the breadth of a female pelvis, to distinguish the sex of a given individual. *No character that cannot be practically utilized for that problem merits the title of sexual.*

All the organs stamped indubitably with sex character belong to the sphere of animal life, the life of external relation, of which the sex relation affords the primitive nucleus. The brain, which reflects in its marvellous mosaic the entire body, reflects also whatever degree of sex attribute each of its organs possesses. Its share in the character of the sex organs proper is expressed in the sex and the parental instincts—both psychic phenomena correlated with, but not conditional upon, the physiological processes or anatomical peculiarities of the genital apparatus. As the ultimate regulator of somatic nutrition, the brain shares the only sex impress stamped upon nutritive function by regulating the menstrual wave. Reflecting the special characters of the locomotor system, the organs for kinetic energy, the brain seems on the whole to possess a less quantum of force for mental operations in the sex endowed with the least general kinetic energy, although this general law is traversed by countless individual exceptions. Within the limits of the male sex there is not the slightest correlation to be detected between muscular and mental energy, although a kinetic element enters undoubtedly into all thought process.

The sex character of lessness in quantity of energy does not involve qualitative distinctions.

The foregoing enumeration exhausts the cerebral characters

¹ The derivation of esthetic feeling from sexual instinct, and associated explanation of lesser artistic capacity in women owing to their lesser sexual instinct, seems legitimate.

which can justly be called sexual. None of them can be correlated with any known anatomical peculiarity of the brain, unless superior kinetic energy be associated with a greater development of the parietal regions, the seat of the motor centres. Inferior development of this region may explain the comparative narrowness of the female brain, of which Rudinger made a distinct indication of feminine sex character. It has already been noted that in a complex organism it is impossible to utilize as criteria of sex character the simple attributes of sex cells, and that among multiple attributes such must alone be selected as sexual which can be brought into demonstrable relations with sex functions. As these relations are of different degrees of intimacy, the sex characters are arranged on a sliding scale, rising from the sex organs themselves, whose character is determined by their obvious function, to the mental attributes which may or may not have any relation to sex function at all. The arbitrary interpretation of such attributes, their arbitrary predication in accordance with *a priori* theory, though strictly speaking biologic errors, are attended by practical and social consequences rare to scientific classification.

It is evident that if throughout the body sex character, though widely distributed, is yet not universally extended; in the brain, which resumes the rest of the body in mosaic, sex character can also not extend throughout. The visceral functions of the brain which lie below the threshold of the life of relation, the vast and innumerable functions of relation which unfold beyond the primitive relations of sex and locomotion, are either infra- or extra-sexual. It is a futile task to attempt to determine the masculine or feminine character of the brain or its mental activities from the sex of the individual to which it belongs. This sex is only the expression of a predominance of organic attribute; it is a relative, not an absolute distinction. *A germ cell is male or female; a metazoic organism can only be more male or more female.*

In addition to the sex characters acquired in the germ through the conflict of sex cells are others, acquired in the stress of circumstance attending the exercise of the sex functions, and many of which, for the human race, involve wide social conditions, consequences, and complications.

Since it has been shown possible to dissociate and then reunite in the most varied combination the organs which constitute the

central nucleus of sex attribute, the possibility at once suggests itself of the most varied combination between all other sex attributes, and also between those which are not properly sexual, but only observed empirically in more or less habitual preponderance in one or the other of the sexes. Nor can such possibility be rejected for normal individuals on the ground that sexual perversion, physical or psychic, constitutes a profound and on the whole exceptional degeneracy. The blending in one individual of the characters derived from two individuals of opposite sex is not an abnormal phenomenon at all, but, on the contrary, in regard to certain peculiarities regarded as indifferent—*e.g.*, the color of hair and eyes—such complex inheritance is known to be of daily occurrence. The only infallible criterion of degeneration is sterility; and degrees of degeneracy may be graded in proportion as they tend, at longer or shorter intervals, to entail sterility. Escape from sterility necessitates the decisive triumph in the germ of the sex characters of one or the other reproductive cell. This is apparently the only reason why such triumph is, in the enormous majority of cases, so complete, that the individual resulting from the conflict is assigned without hesitation to the one or the other sex. Nevertheless the triumph, though decisive, is by no means necessarily exhaustive; on the contrary, it is necessarily incomplete. In other words, with a complete central fusion of certain elements of the two germ cells, there remains on the periphery of this organic centre the most varied degrees of blending and association of the remaining elements, which do not efface each other, but continue to coexist and develop side by side. The new individual is neither all father nor all mother, but only more or less of each. This is the human equivalent for the formula already given: "No individual with complex sex attribute and derived from bisexual reproduction can be all male or all female, but only more male or more female."

The sex consciousness of hermaphrodites and pseudo-hermaphrodites may be defined as follows: Psychic like physical attributes of sex are not unique nor exclusively dominant, but multiple. Owing to this multiplicity they may be variously combined with one another or dissociated from one another in varying degrees. The unity of consciousness which results from the combination is neither conditioned upon nor does it reside in any single one of the elements, physical or psychic, which

enter into this consciousness. Who can say where this unifying power resides?

Further, the sex elements of consciousness are not coextensive with consciousness, as the elements in the germ cells destined to be immortalized in new germ cells and organs, or to confer a sex impress upon organs and tissues not in themselves

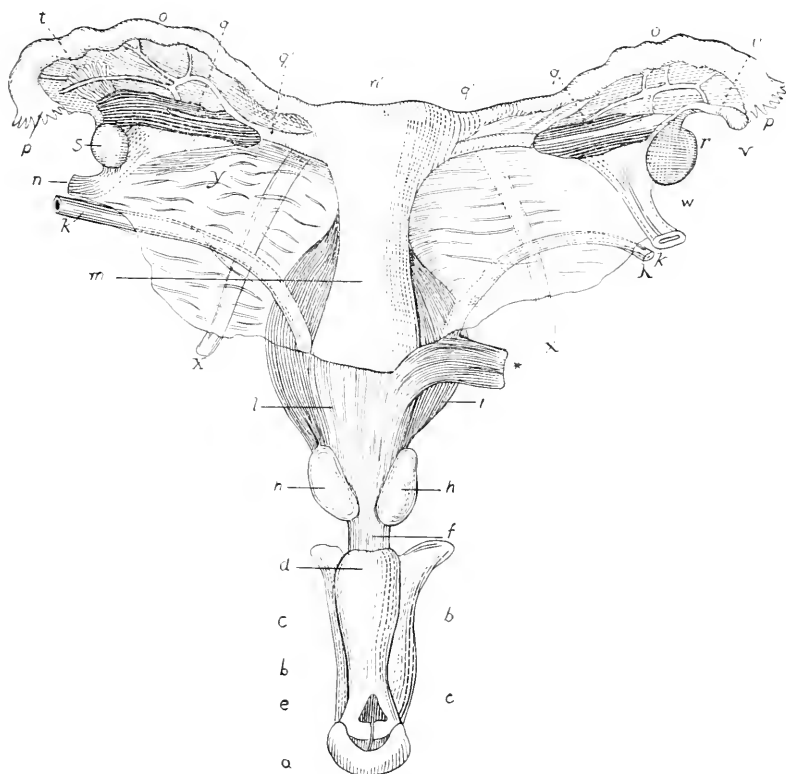


FIG. 9.—Bilateral hermaphroditism. *a*, gland; *b*, corpora cavernosa of penis; *c*, urogenital sinus; *f*, membranous portion of urogenital canal; *h*, prostate; *i*, bladder; *k, k*, ureters; *l*, vagina; *m*, uterus; *n'*, fundus uteri; *o, o*, Fallop'ian tubes; *p, p*, infundibula; *q, q*, ovaries; *r*, right testicle; *s*, left testicle; *t*, left parovarium; *u*, right parovarium; *v*, hydatid; *w, w*, blood vessels; *x, x*, round ligaments; *y, y*, broad ligaments.

sexual, do not, nevertheless, comprise all the elements of the germ. The unity of individual consciousness is wider than the unity of sex consciousness, which is equivalent to saying that the individual *contains* a male or female unity, but cannot be said to consist of it, *to be* a male or female. In higher verte-

brate nature, as in the sphere of which St. Paul speaks, "there is neither male nor female."

Too equable blending of opposite sex characters neutralizes each to the point of sterility, constitutes perversion, malformation, degeneracy. But from this level of organic disaster there is a steady gradation, through insensible degrees of variation, toward an organic perfection, where the blending of germ cells has secured the advantages of complex organization, an organization of both physical and psychical sex complexity, yet has evaded the dangers of sexual neutralization.

The diagram Fig. 9 is quoted from Heppner by Hirst in his treatise on "Human Monstrosities." Part I., p. 77 (Philadelphia, 1891).

SOME OBSERVATIONS REGARDING THE DIAGNOSIS AND TREATMENT OF ATRESIA VAGINÆ.

BY

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(With three illustrations.)

CASE I.—A. S., unmarried, aged 18, a native of Iceland, was admitted to Ward 24, R. E. I., on July 24th, 1891, complaining of a swelling in the abdomen with pains which had troubled her for nearly three years.

No facts about the previous history were ascertained, owing to the difficulty of holding communication with her. Through the Danish consul it was found out that the swelling had gradually increased and that the pains were felt only at intervals of three or four weeks.

State on admission.—The patient was a well-nourished, robust-looking girl with a pleasant expression. The mammae were large and pendulous like those of a married woman. Around the nipple was a large, dark areola. No secretion could be expressed from the breasts.

The abdomen presented a prominence most marked toward the left of the navel and extending from a point slightly above it downward and inward toward the pelvis. On palpation it was

of firm consistence, scarcely movable, and not painful to touch. The percussion note was dull over it; on auscultation a faint bruit was heard.

The external genitals were fairly well developed. The hair of the mons veneris, instead of being arranged, as is normally the case in women, with the upper limit transverse, tailed up toward the navel as in males.

There was no ostium vaginæ, the hymen being quite imperforate and having a thick, fleshy appearance. On recto vesical examination there appeared to be but a thin partition in place of the vagina. Above this was felt on bimanual examination the uterus, somewhat enlarged and only slightly movable; extending outward from it on the left side was a swelling the size of a fetal head, immovable and apparently cystic. The right appendages could not be made out.

The case was diagnosed as one of atresia of the whole vagina, with retained menstrual blood in the tubes, chiefly in the left one. Operation was decided upon, and the question arose as to whether the cervix should be reached by tunnelling through the atresic vagina or whether laparotomy should be performed, the distended tubes being removed. As the recto-vesical septum appeared to be too thin to warrant the establishment of a good or permanent vagina, it was decided to perform abdominal section. This was carried out on July 29th. On opening the abdomen many vascular adhesions were found between the swelling and adjacent parts, among which were several cysts containing serum. After division of the adhesions the swelling, found to consist of the greatly distended left tube, was separated from its adhesions and opened. A quantity of thick, brownish-red fluid, apparently altered blood, escaped. The lumen of the tube was somewhat loculated and appeared to be shut off from the uterine cavity. No fluid could be squeezed from one into the other. The greater part of this tube sac and the corresponding ovary were then removed along with the appendages of the right side.

After-progress.—The patient did well for some weeks and was quite convalescent. Then symptoms of septic peritonitis set in and the patient gradually sank. She died on September 19th.

Post-mortem examination.—The pelvis and abdomen were removed intact and frozen. A vertical mesial section was made and afterward each slab was dissected.

Microscopic examination of the uterus was also carried out. The appearances found on vertical mesial section are represented in Fig. 1.

The condition of parts was as follows:

Uterus.—The uterus is upright, slightly anteverted, and enlarged to the length of four and three-eighths inches, the fundus being one and three-eighths inches above the brim. The body

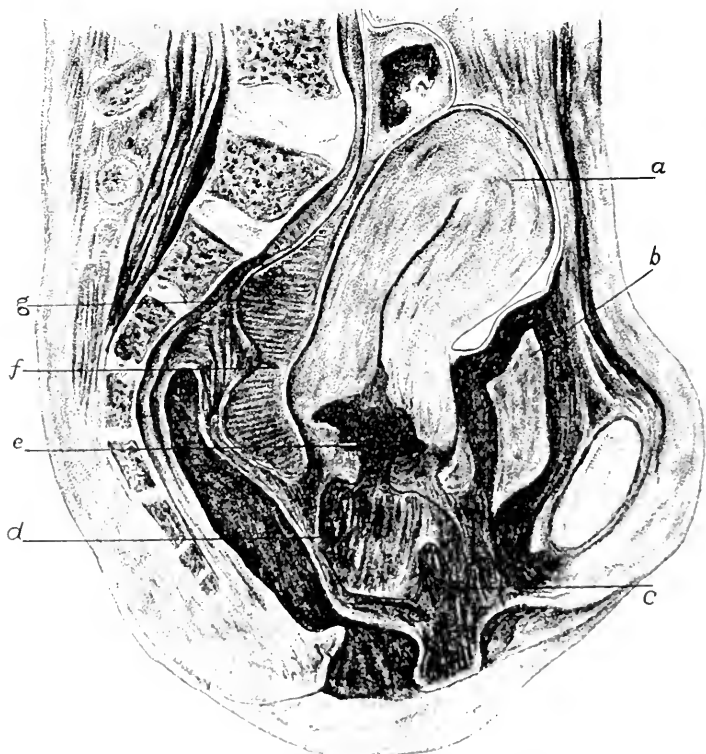


FIG. 1.—Vertical mesial section of pelvis. *a*, uterus; *b*, bladder; *c*, atresia of lower part of vagina; *d*, vagina distended with fluid above the atresia; *e*, cervical canal distended; *f*, peritoneal adhesion; *g*, fluid in peritoneal cavity.

measured three and three-quarter inches in its widest part transversely and two and one-eighth inches antero-posteriorly.

The body wall is thickened and of a pale yellowish gray with a pinkish tinge; no vessels can be seen in it. Its cavity is almost entirely empty, appearing as a mere slit on vertical mesial section. The anterior and posterior walls of the body are smooth next the cavity, but on each side the mucosa is rugose,

resembling the arbor vitæ of the cervix, this condition extending down to the cervix.

The cervix is very abnormal. Its cavity is much distended in all directions, on vertical mesial section appearing lozenge-shaped. It measures a little more than an inch in its vertical and transverse diameters. It contains a thick, greenish fluid filled with fibrinous septa. The wall of this cavity is rugose, colored slightly red, and covered partly with flakes of fibrin. The thickness of the cervical wall is much less than that of the body. The os externum admits the end of the little finger.

The whole organ is fixed by extensive adhesions to surrounding structures. A fine probe can be passed along the interstitial part of the left tube toward the stump left from the operation. On the right side the tube is impervious.

Vagina.—This is found to be a cavity two inches in length, two and three-quarter inches wide in its upper part and one and three-eighths inches in its lowest. Below it ends blindly, owing to the presence of the atresic portion, a dense, fleshy band of irregular thickness but averaging about seven-sixteenths of an inch. The vaginal walls are ragged and considerably injected in their upper portion. The cavity is filled with the same thick fluid that was found in the cervical cavity. They are in communication through the os externum. The fornices are nearly obliterated.

Bladder.—The bladder contains a little urine and is higher than in normal cases, the peritoneum being reflected on its upper surface from the anterior abdominal wall at a point nearly two inches above the symphysis pubis. The viscus may be described as standing vertically, its cavity being in a straight line with the urethra.

The vertical measurement of the utero-vesical septum is enormously increased, being nearly two inches in length. It contains very little loose connective tissue, the bladder and cervical walls being almost in apposition; in its lower half it is occupied by a small collection of serum.

The *Urethra* is of normal length, but stands vertically in line with the long axis of the body.

External Genitals.—The clitoris is well developed. The *labia minora* are very small. The *labia majora* are fairly well formed. The vulvar slit measures one and one-quarter inches, the distance from the urethral orifice to the perineum being abnor-

mally short. No distance can be made out between vestibule and hymen. They appear as one, the surface being irregular.

Peritoneum.—Extensive purulent peritonitis exists, the bowels, uterus, and remains of the broad ligaments being very adherent, collections of greenish, purulent fluid being found among the adhesions. The lowest dip of the peritoneum behind the uterus is two and seven-eighths inches below the brim, the pouch of Douglas being filled with sero-purulent fluid and containing adhesions. The lowest dip of the utero-vesical pouch is only about one inch below the brim level.

Microscopic Examination.—The great increase in the size of the body is due partly to an increase in the muscular tissue,

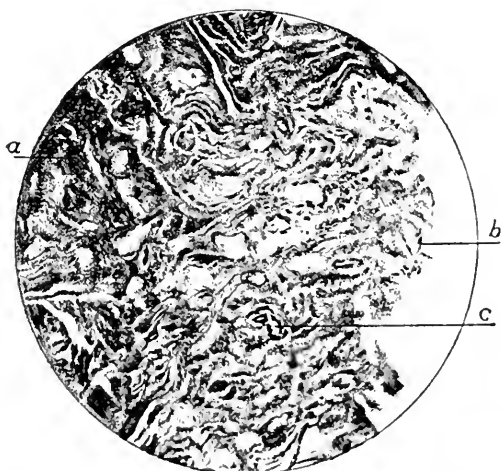


FIG. 2. Mucosa of body of uterus near os internum. The inner surface is very irregular and its covering epithelium absent. In the substance of the mucosa there is marked interglandular infiltration and destruction of glands. a, muscular wall of body; b, inner surface of mucosa; c, remains of glands. $\times 80$.

partly, also, to a proliferation of the connective tissue. Here and there the latter is very dense and sclerosed.

The mucosa has an irregular surface, the superficial layer having somewhat disappeared. No lining epithelium is found anywhere. The gland tubes are narrow and irregular, the lining epithelium having been cast off and disintegrated for the most part. In a few of the glands in their deepest portions the epithelium is found preserved *in situ*, but it is in most of them thrown into the lumen as a cast or as debris. There is marked interglandular proliferation of connective tissue, and a few small hemorrhages are also found.

The wall of the *cervix* is thinned and stretched. The fibrous tissue is mainly dense and firm, and sclerosed in many places.

Folds of mucosa are seen, but the mucous membrane is thinner than normal and its surface has an eroded appearance. The lining epithelium is entirely gone. The remains of a small number of glands are seen, in a few of which the epithelium is attached to the wall. For the most part the epithelial cells have been cast off and appear in various stages of disintegration. All around the surface there is a good deal of chronic inflammatory thickening. In the cavity next the wall are found serum, epithelial débris, fibrin, red and white blood corpuscles, pus corpuscles, and blood pigment.

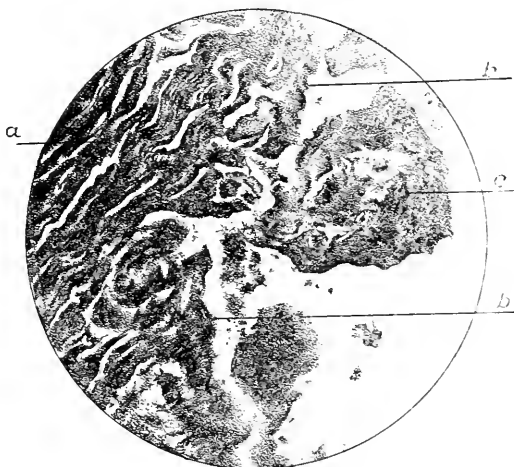


FIG. 3.—Lining of cervical canal. The mucosa has an eroded appearance. The glands are almost entirely destroyed and there is present considerable inflammatory infiltration. *a*, muscular part of wall; *b*, inner surface of mucosa; *c*, coagulum lying close to wall. $\times 80$.

Remarks.—This case presents several features of great interest. In the first place, in regard to the diagnosis, an error was made in estimating the extent of the atresia. On careful rectal examination, combined with the examination of the bladder with the sound, the extent of tissue between the bowel and bladder seemed so slight that it was believed that the vagina was completely atresic and represented only by a thin fibrous band.

The post-mortem examination showed that the vagina was normally developed in its upper three-fourths and atresic only in its lower fourth. It is probable that its walls were very thin,

and not so thick as they appear in the specimen, which represents a condition found seven weeks after the operation, when some hypertrophy had resulted from the distention of the vaginal cavity during this interval. The presence of a well-formed uterus was the strongest indication that the vaginal atresia was not a complete one, because usually entire atresia is found only in connection with atrophy of the uterus. Thus Breisky,¹ the chief authority on this subject, found in five cases a rudimentary uterus and in three entire absence.

Of extreme interest, also, is the observation, which appears to be unique, that, notwithstanding the fact that the patient's history pointed to menstrual retention for about three years, *there was no distention of the vagina or uterus*. Breisky says that in every deep-seated atresia the distended vagina forms a large part of the retention tumor. It has been often noted that one of the earliest symptoms of retention may be difficulty in urination or defecation, due to the pressure of the vaginal swelling. G. Veit² has pointed out that this may occur even before the uterus has become distended. Neither was there any accumulation in the uterus, this organ on careful bimanual examination only appearing to be a little enlarged. It is usual in similar atresia cases of old standing to find the uterus becoming gradually distended from below upward. It is noticeable, indeed, that the only collection of retained blood was found in the left tube. Usually both tubes are distended. A case of unilateral hematosalpinx along with distention of the vagina and cervix is described by Breisky.³ This condition in the tubes is more commonly found where there is atresia of one half of a double genital canal. The source of the blood in the distended tube in this case is not clear. It is either purely tubal, or purely uterine menstrual blood which has been forced upward into the tube, or a mixture of both. In favor of the first hypothesis is the fact that at the examination of the patient before operation no distention of the uterus was found—a condition which has never before been recognized in a case where menstruation had progressed and its products retained for one or more years. Against this view is our knowledge of the origin of the blood in menstruation.

¹ "Diseases of the Vagina," Cyclopaedia of Obstetrics and Gynecology, edited by Grandin, vol. xi., p. 225.

² Breisky, op. cit., p. 227.

³ Op. cit., p. 229.

It has been alleged by Bandl¹ and a few others that in menstruation blood is poured from the tubal as well as from the uterine mucosa, and that one of the chief causes of hematosalpinx is the retention of this tubal flow owing to some obstruction in the tube lumen. Against this view in the present case is the fact that the tubal distention was unilateral. All recent researches, however, go to show that the tubal mucosa does not bleed during menstruation. Moreover, at the time of operation no communication could be made out between the uterus and the distended tube. The frequency of closure or constriction of the interstitial part of the tube in hematosalpinx is noted by Hennig,² and to this fact he attributes the tubal origin of the blood in this condition.

Breisky³ has only seen one case in which the interstitial portion of the tube was dilated. There was the possibility that this closure was of recent origin and that it only developed after the blood had collected in the tube; the post-operation collection in the cervix and vagina somewhat favors this view. Before the operation it may be supposed the menstrual uterine blood was forced in the direction of least resistance, which happened to be the left tube. After the operation this means of escape was cut off and so accumulation began in the uterus itself.

Against the purely uterine origin of this hematosalpinx is the supposition that reflux of blood from the uterus into the tube could not go on for a long period through the very narrow lumen of the interstitial portion. We know, however, that instrumental pressure can force fluids in this direction, and there is no reason why it should not take place as a result of strong contraction and resistance of the uterus owing to the way of escape being cut off below. In this relation should be remembered the tendency of blood in the genital tract to keep fluid.

It is remarkable, if this explanation be correct, that reflux should take place only into one tube, if the lumen in both were patent. The explanation could only be that the resistance to the reflux, for some reason or other, was so much greater on one side that the flow, having started in one direction, continued on that side only.

¹ "Diseases of the Tubes, etc.," *Cyclopedia of Obstetrics and Gynecology*, vol. xii., p. 36.

² "Die Krankheiten d. Eileiter," Stuttgart, 1876. ³ *Op. cit.*, p. 243.

If the reflux hypothesis as to the origin of the tubal blood be not true, then either no blood had escaped from the uterine mucosa, or, having done so, reabsorption had soon taken place. That a uterine discharge of blood must have taken place there can be no doubt. It occurred after the operation when the greater part of the stimulus to its discharge had been removed.

There is no appearance of old, laminated, tough fibrin lining the walls of the uterine cavity, so that not much alteration could have taken place in the blood after its escape.

The third hypothesis is that the hematosalpinx is partly uterine and partly tubal in origin.

It is not an unlikely thing that after the tube wall had been somewhat stretched as a result of reflux uterine blood, hemorrhage might take place into the tube lumen from the vessels in the wall in the successive periods of menstrual congestion in the pelvis. Were the menstrual congestion alone the cause of the tubal hemorrhage, then it should have acted on both sides. As only one side is affected, the damaged condition of one tube is the only factor which suggests itself as explaining why hemorrhage might take place from the wall of that tube rather than from that of the opposite side.

The condition of the uterine mucosa at the post-mortem throws very little light on the condition previous to the operation. As I have stated, it is in a condition of chronic inflammation, the epithelium and glands being largely destroyed. It is impossible to say how much of this is due entirely to post-operation changes. The source of the fluid found in the vagina and cervix is also doubtful. It may be mainly due to the exudation from the inflamed area, a little blood having escaped from small hemorrhages in the mucosa, though it is to be noted there is no marked vascularity or hemorrhagic tendency in the mucosa. The fluid may have resulted, however, from actual menstruation which occurred even after the operation. While the right appendages were entirely removed, it is to be remembered that a small bit of the lower portion of the dilated left tube was left behind, and the occurrence of menstrual discharge in the uterus in such a condition is a fact which has already been noted by several observers, notably by Lawson Tait.

The origin of the sepsis so long after operation is not evident. There was a good deal of peritonitis about the sac when the

patient was first examined, but this improved greatly during the first few weeks after operation.

CASE II.—J. P., unmarried, aged 21, a mill worker, was admitted to Ward 24, R. E. I., on November 6th, 1893, complaining of amenorrhea and of pains in the abdomen which began when she was 13 years old.

The patient had been in the ward in July, 1892, and her history up to that time was as follows: Family history is good and her home healthy and cheerful. She is a stout, well-conditioned girl, and, apart from the abdominal pains, has never suffered much from illness. Since her thirteenth year she has complained of pelvic or abdominal pains which have recurred at intervals of three, four, or five weeks. The pain is felt in the back and in the iliac regions, especially on the right side when she works hard. When the pain is bad she feels as if something might burst. Before January, 1893, she worked for eleven hours daily; after that time she was only able to work for eight hours.

On examination per rectum, along with the exploration of the bladder with the sound, the atresic vagina was felt as a well-marked septum. Above this was felt a large, rounded mass, apparently cystic, which extended up to the umbilicus. It occupied the hypogastric and partly the iliac regions. It was immovable and only slightly tender on examination. The tubes could not be distinguished separately and it could not be decided whether the tumor was uterine only or partly tubal as well. As the uterus was certainly distended, it was decided to dissect through the atresic vagina.

This operation was performed, soon after her admission in July, by Prof. Simpson, and an artificial vagina was made sufficiently large to hold two fingers. The uterine cavity was opened into and a quantity of dark, thick fluid escaped slowly. The opening was enlarged, and when the cavity was explored with the finger a large amount of fibrin was found adherent to the walls. The cavity was thoroughly washed out and a glass tube was passed, in order to drain the cavity and to dilate the newly formed canal. The size of the abdominal tumor did not greatly diminish as a result of the operation.

After-progress.—The discharge continued to flow from the uterus, daily antiseptic irrigation being kept up. The abdominal tumor gradually diminished in size.

The patient's health continued good, and she was dismissed from the hospital on October 14th, having been instructed in regard to the use of the vaginal tube and the donche. She continued to wear the tube for two months constantly and afterward only at night.

After she left the ward she menstruated twice. The first period was in October, 1892, and lasted for three days; the second was in February, 1893, and lasted for two days. There was not much blood lost.

On the patient's readmission in November she complained of the old pains. They had recurred at intervals after the operation, but were not so bad as they had been before. They had become more severe, however, just before her return.

She was examined under chloroform on November 21st. The uterus was found enlarged to the size of a cricket ball; it was cystic and slightly movable. Behind it was felt another cystic mass, filling the pouch of Douglas and extending somewhat to the left of the uterus. The upper end of the vagina was considerably contracted and the cervix was closed.

The uterine cyst was evacuated by aspiration through the closed cervix, a thick, yellowish, muco-purulent fluid escaping; the cervix was again opened and dilated. A glass tube was passed through the opening, in order to drain the uterine cavity and to prevent closure of the cervix.

As a result of this operation the uterus diminished somewhat in size. The posterior cyst remained unaltered. After a few months the girl returned to the infirmary, having since her last period of residence suffered from considerable pain. Abdominal section was performed and the cystic mass partly excised. Its exact relations could not be made out, owing to the extensive number of adhesions in the pelvis.

Since this operation she has continued to improve and is now in the best of health.

Remarks.—There was no doubt in regard to the diagnosis of this case. It was one of complete atresia of the vagina. It was impossible, however, to make out the extent of the genital tract, which was distended with fluid. Only one rounded swelling could be detected at first, and it was thought to be the uterus, but it is very likely that the tube was distended but covered in adhesions behind the uterus. The presence of such a well-marked uterus is worthy of note. As has already been

stated, complete atresia of the vagina is, in the majority of cases, associated with rudimentary uterus or entire absence of the organ.

In regard to the clinical history of both cases, it is to be noted that neither of them presents the condition very often described in old-standing atresia cases, viz., continuation of pain from one menstrual period to the other. The pains were only felt at intervals, usually of three to five weeks' duration, and were worse when the patient worked. It is also clear that the peritonitis was not associated with continual suffering.

The treatment was unsatisfactory in both cases. In the first case the dilated tube alone was opened, the uterus being untouched; this procedure was followed by distention of the cervix and unopened vagina. In the second case the uterus was opened into through the atresic vagina, the tubes being left unopened; afterward a dilatation of one or both tubes was found in the abdomen; this case was also unsatisfactory in that the cervix closed up after having been opened, in spite of the use of a dilator (perhaps, however, the patient was careless in the use of the tube after she left the infirmary).

These cases indicate that *double operation* is the best method to adopt—i.e., removal of the dilated tubes and opening up of the atresic vagina and cervix where possible. That the former should always precede the latter is the teaching of several authorities, and the soundness of this view is beyond dispute. The danger of rupture of the dilated tube during evacuation of the uterus has been pointed out¹ sufficiently often to emphasize its importance. This danger arises from the fact that the tubal sac, if fixed with adhesions (and it is in the majority of cases), cannot change its position in keeping with the change in size and position of the uterus after its evacuation. Moreover, should septic infection follow the opening of the uterus there is an increased danger of rupture of the tubal sac. If, on the other hand, the distended tubes be first removed by laparotomy, the utero-vaginal swelling can be opened at a later period from below.

¹ Rose, New York Medical Record, ii., No. 26, p. 35. Steiner and Billroth, Wien. med. Wochenschr., 1871, No. 30. Freund, Zeitschr. f. Geb. u. Gyn., Bd. i., 1877.

VAGINAL HYSTERECTOMY BY GALVANO-CAUTERY.

REMARKS ON THE SCOPE AND LIMITS OF THE OPERATION.

 BY

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 (With seven illustrations.)

ON July 27th, 1895, I removed the uterus, tubes, and ovaries by means of the galvano-cautery knife alone, neither scalpel nor scissors having been used throughout the entire operation. This is the first time in the history of surgical gynecology, so far as I know, in which the operation of vaginal hysterectomy has ever been done, or even attempted, by any such means.

Though for many years I have been favorably impressed as to the practicability of doing this operation by the delicate cautery knife, I could hardly have hoped for so convincing a proof, not only of the well-known advantages assured by this method over all others, but of the facility with which it could be accomplished. My second case occurred August 14th, but the difficulty experienced here was much greater, as a glance at its leading features will show. There was complete prolapse of the uterus, rectum, and bladder of nine years' standing, and for four years previous to her appearance at my clinic no attempt whatever had been made to return the parts within the pelvis. The mass, which was of the size of a large cocoanut, was hard, almost solid to the touch, and deeply ulcerated from long exposure and friction. Warm applications of carbolized glycerin and water were used for a few days, when the parts were returned with some difficulty. By the use of large, firmly rolled tampons soaked with carbolized glycerotannin, and the free use of hot water kept up for several weeks, it was hoped that her condition would be so much improved as to call for supravaginal amputation by galvano-cautery only, and keeping the vagina on the upward stretch until cicatrization would be complete. This treatment, in cases less aggravated, has been uniformly successful in my hands for many years. In this instance, however, I abandoned the idea and decided on vaginal hysterectomy.

As to the *mode of procedure* in performing vaginal hysterectomy by galvano-cautery, there is really no material difference from that usually adopted where other means are employed.

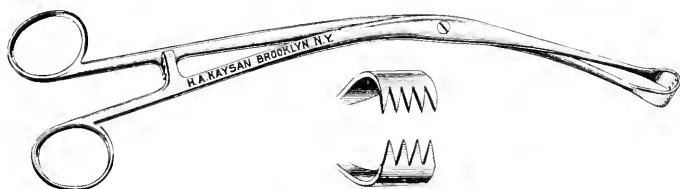


FIG. 1.—Volsella of utero-vesical flap.

The circular incision of the cervix, the careful dissection of the vesical wall from the uterus, opening of the cul-de-sac of Dou-

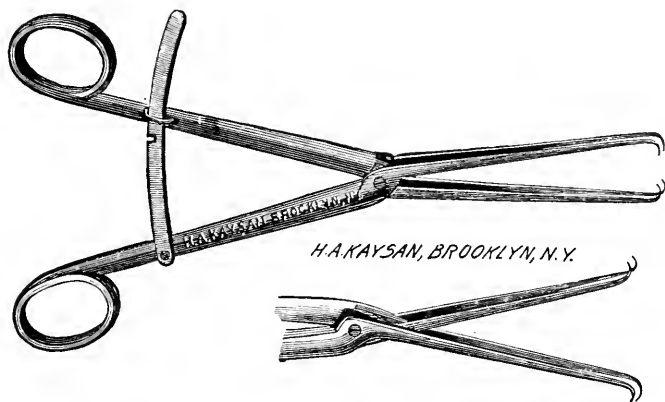


FIG. 2.—Diverging intrauterine volsella.

glas, and the severing of the broad ligaments as clamp or ligature is applied, are steps in the operation alike in all methods. In

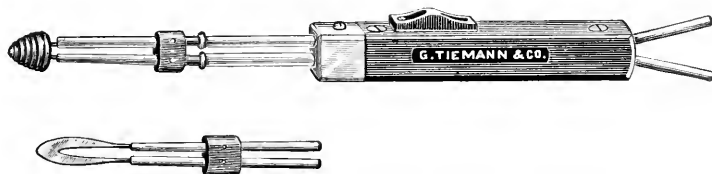


FIG. 3.—Cautery knife. Dome-shaped electrode and universal handle.

my second case, however, more than ordinary difficulty was experienced, and great care needed in separating the uterus and bladder because of the deformed shape of the former and the

abnormally extensive and irregular utero-vesical attachment. The cone-shaped cervix measured fully two inches in diameter below and tapered in a curved manner toward the os internum, at which point the body of the uterus bent abruptly forward. This part of the operation was, therefore, proceeded with in a slow and cautious manner, and the vesical wall was kept on the stretch by a suitable volsella and otherwise protected by an assistant as the dissection progressed. Though the uterine artery had been secured at an early stage by compression forceps, I deemed it best to include the middle third of each

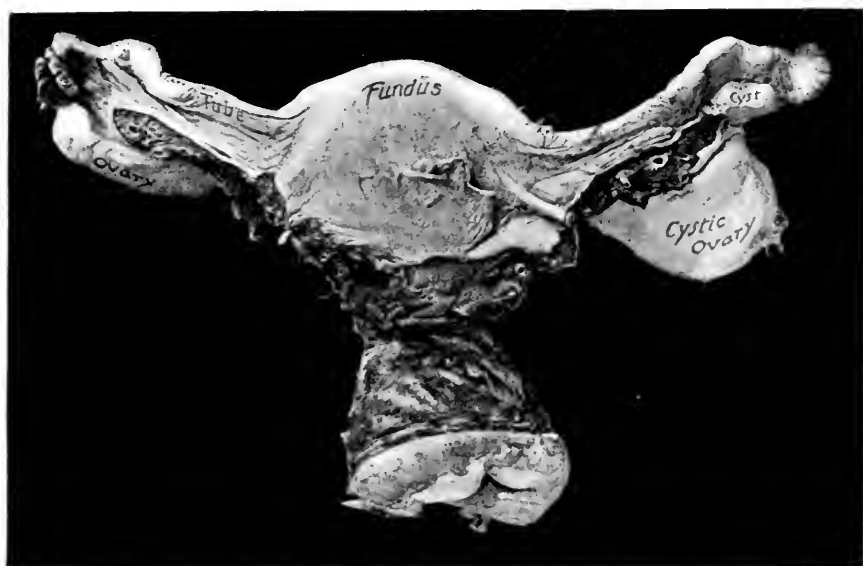


FIG. 4.—Anterior view of uterus and adnexa removed by galvano-cautery.

broad ligament in a second forceps. The peritoneal cavity being now accessible, the ovaries and tubes, which were found to be adherent to a considerable extent, were released, and these with the fundus were turned out posteriorly. The ovarian arteries were ligated by silk, which was cut short, and the vagina treated in the ordinary manner.

With regard to this new departure in vaginal hysterectomy, I have only to say that from my experience in two cases, and also in a third in which I secured the uterine arteries, released the vagina, and severed a large part of the broad ligaments preparatory to opening the abdomen for the removal of an enormously

large myomatous uterus, I am fully convinced that in galvano-cautery the hysterectomist will find an agent of incalculable value. Ablation of the uterus by this means is, in its very nature, an antiseptic operation, and all tissues severed are left in an absolutely aseptic condition. Moreover, in a reasonably early stage of cervical cancer, and before fixation takes place, if gynecologists could only be persuaded to leave the beaten track and give this ideal method a trial, they would no longer find it politic to evade plain questions touching periods of recurrence in their cancer cases, by replies such as "I have not been able to

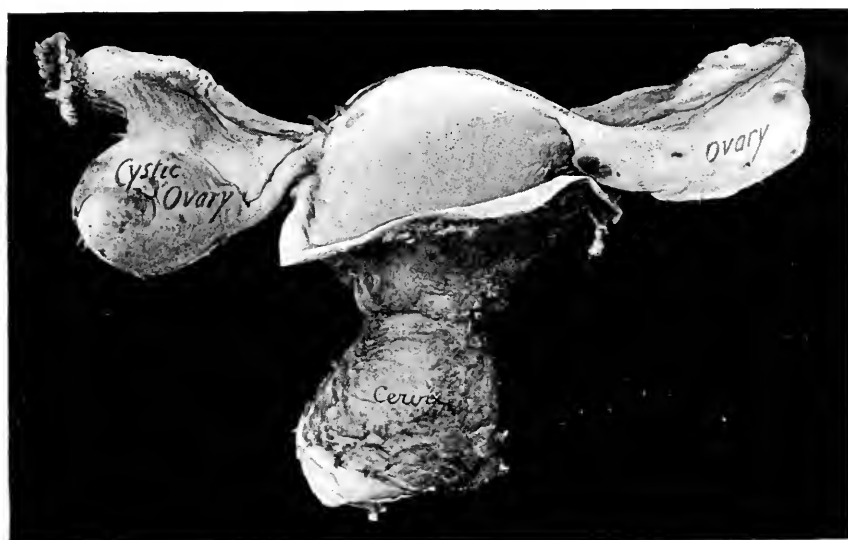


FIG. 5.—Posterior view.

follow my cases," or, as in the laconic if not polite response of a Western hysterectomist of many uterine trophies, "*I have no time to look up my records.*"

When fixation has already been reached and the lymphatics and cells in the broad ligaments have doubtless arrived at a primary stage of degeneration, there is but one operation of any lasting value, and that is *supravaginal excision by the cautery knife, NOT LOOP, and thorough additional cauterization of the bottom, sides, and edges of the excavation—in other words, a dry roast.*

This conclusion has been reached through a careful study of the subject and a large clinical experience running through a

period of over a quarter of a century. Besides, it fully harmonizes with my review of the subject of three years ago, and

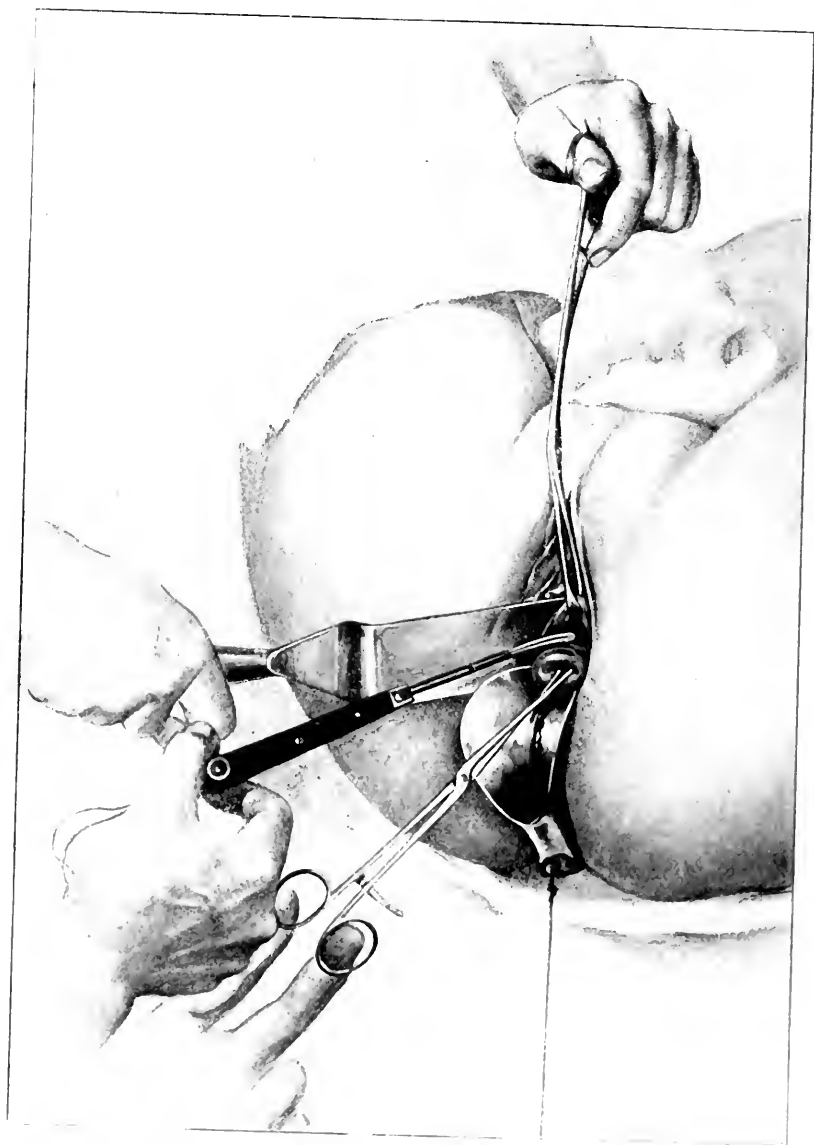


FIG. 6.—Cut of operation, illustrating hysterectomy by galvano-cautery. (From photograph at time of operation.)

warrants the further conclusion that the field for vaginal hyster-

ectomy in its application to uterine cancer, if indeed such there be at all, is an extremely narrow one.

If gentlemen who are prone to indulge in pseudo-criticism, and who would fain belittle methods of which they know practically nothing, would adopt the course here indicated and cease to display so much indifference regarding the ultimate results of their work that they refuse or neglect to test the validity of oft-recorded facts, they would probably find that more of their patients would "follow" them—nay, bless them too—nor would a glance at records of the past be something to be avoided.

It may, I think, with truth be said that vaginal hysterectomy as a radical yet safe and successful measure of permanent relief in certain diseased conditions of the uterus and adnexa has long since passed the period of doubt and timorous incredulity.

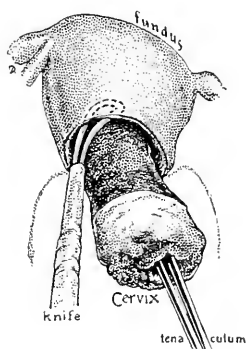


FIG. 7.—Illustrating supravaginal excision or amputation.

That it is often resorted to for ailments otherwise remediable, and which, as a matter of fact, are being treated successfully every day, no one *au courant* with the existing drift and past history of surgical gynecology can doubt for a moment. Nevertheless the medical press throughout the civilized world abounds with laudatory references to the subject, while periodicals devoted to diseases of women exclusively are often found to contain little else than discussions and reports of cases treated in this manner. In our societies, too, a meeting rarely takes place, in fact would seem devoid of interest, without the exhibition of one or more "specimens." It would thus appear that gynecologists generally, however trammelled by ultra-conservative notions, and while justly deprecating unnecessary resort to this operation, freely yet reservedly indorse it.

Some years ago operators merely vied with each other in devising novel, if not useful, modifications in technique, the choice of instruments, the material for ligatures, etc.; in fact, the various means and ways by which the same result practically could be and had been attained over and over again. No sooner, however, had these details been disposed of by each one resolving to adopt that plan which suited his own notions best, than they ceased to wrangle and applied themselves industriously toward piling up their lists of cases—in some instances already far above high-water mark. Thus it has come to pass that not a few gynecologists, whose daily clinical work and means of observation could hardly be said to be very limited, are often amazed at the number of vaginal hysterectomies reported by many of their confrères. Moreover, if we consider the many instances within the knowledge of most of us of cases withheld from publicity through professional modesty or other motives, it is quite possible that the number of recorded or reported cases would be found to fall far short of the whole. Be this as it may, it is earnestly to be hoped that an operation of so much promise, yet one which carries with it a certain amount of sanguinary glamour and a reputation for progressive and up-to-date gynecology, may not be allowed to suffer through individual ambition or misdirected enthusiasm.

In various utero-ovarian diseases of a chronic inflammatory or other *non-malignant* origin or nature, neoplasms, and displacements of long standing and not otherwise curable, the consensus of opinion is that vaginal hysterectomy is a safe, a judicious, and usually a successful operation.

It should never be forgotten, however, that with this general approval there must always be associated at least two very important conditions—namely, first, that due care be observed in the selection of proper cases, and, second, that the operation should as far as possible be confined to competent hands.

There is no denying the fact that the frequency with which vaginal hysterectomy has been resorted to of late years is justly chargeable with a certain degree of unrest and a fear on the part of many that the interpretation of these conditions has been too liberal and too elastic.

It seems to me eminently proper, then, to carefully reflect on the possible cause or causes of this abuse and see whether there exist any reasonable grounds for so serious a reproach.

An impartial observer could hardly fail to note the glowing reports, both here and abroad, and the confident manner in which all objections on the score of danger are flippantly met and disposed of by successful operators. We are constantly assured that the "primary" mortality, already encouragingly small, must continue to grow steadily less as we become more familiar with the details of the operation. When to this is added the prevailing opinion that the operation is by no means a difficult one, nor does its execution demand a very high degree of skill or dexterity on the part of a surgeon, it is not surprising that any and every gynecological amateur, or the general practitioner without any special qualification, would often be only too willing to assume the responsibility. Indeed, one cannot fail to see that in this very assurance as to the safety and simplicity of vaginal hysterectomy lies the great danger of its being abused. If, as is quite possible, this persistent attempt to minimize the danger and the difficulty of a grave operation has been a potent factor in tempting any and every physician, though his gynecological knowledge be barely sufficient to tell him which end of a retroversion pessary should go in first, to assume such responsibility, the tendency of this teaching has not been beneficent.

Again, if its effect with the profession at large has been to increase and multiply these operations unnecessarily and without a reasonable equivalent to suffering women, then hysterectomy, stripped of its seductive glitter, can hardly be viewed in the light of an unalloyed boon.

Herein we have the pith and much of the ethics of the case, and the sooner the profession at large begin to realize the fact that hysterectomy is neither a simple operation nor one devoid of danger, and that Péans, Ségonds, Pozzis, and Prices are not to be found in every community, the better it will be for afflicted humanity.

I cannot help thinking that the prominence given to the question of "primary mortality" is largely accountable for many unnecessary and sometimes disastrous hysterectomies. To the well-known inherent resistance of some patients to surgical mauling and manipulation often unavoidably rough and prolonged, no less than the skill and dexterity of the surgeon, are we to look in explanation of low "primary mortality."

The truth is, too much time has been spent and over-much pains taken to dazzle and allure the unwary by this fascinating

"will-o'-the-wisp" and the delusive watchword of "no danger from the operation." The class in which this no-danger cry has wrought most evil—I might almost say havoc—consists mainly of the unfortunate victims of uterine cancer in an advanced stage, and who have been led to believe that this supposed immunity from danger of death in the operation carried with it a hope of relief from suffering and a prolongation of life.

I regret to say my efforts thus far to obtain reliable data on this particular phase of the question have not been very successful, and for reasons already intimated. The returns from the various sources through which I had hoped to obtain some positive and trustworthy information come slowly in, and with few exceptions are wholly valueless in enabling us to get at the facts touching the main question, which is, not whether any or how many patients operated upon for cancer succumb to vaginal hysterectomy, but to what extent has suffering been relieved and life prolonged through the instrumentality of the operation.

We would naturally suppose that one or other, if not both, of these not unreasonable requirements would be the prime motive, aim, and object of any rational human being in submitting to a serious or radical operation, and it is hoped those who have urged and resorted to vaginal hysterectomy for the relief or cure of uterine cancer have been actuated by the purest motives and have aimed at results no less beneficent and reasonable. Nevertheless, and while good intentions are commendable enough, if the alarming proportion of rapid recurrences after vaginal hysterectomy as heretofore conducted, and which leading operators make no attempt to conceal, mean anything, it would seem to indicate pretty conclusively that the end—*i.e.*, the results—so far from justifying, would rather be condemnatory of the means.

In my annual address before the American Gynecological Society in 1892 I took occasion to analyze and sift the published statistics of vaginal hysterectomy for cancer. I endeavored then to expose the deceptive character of these adroitly compiled records and the *sans-froid* with which many leading authorities took unwarrantable liberty with the word "cure." To what extent my effort to filter some truth from that mass of ambiguous and mystified figures may have influenced the subsequent course of my professional brethren I cannot say. I must frankly admit, however, and with becoming humility, that I am unable

to discover any. The baneful influence of gilded statistics so eagerly devoured for several years previously seems to have become too deeply rooted to be neutralized by any antidote so comparatively feeble and at variance with settled opinions.

I have also on various occasions during the past twenty years minutely described a safe and exceptionally successful method of treating these unfortunate cases, and which I know, from the fact of having "followed" quite a number of my cases, insures a longer respite from recurrence than any other operative measure.¹

Of the many peculiar benefits to be looked for from excision of the cancerous uterus by galvano-cautery as already described, by far the most important is the long period of exemption from recurrence of the disease. Though I have never hoped to "follow" all or even a majority of my cases, yet I have succeeded in doing so with a sufficient number to put this fact beyond all doubt. Even now there are in our midst a number of living examples where several reputable physicians of this city have had personal knowledge of their condition prior and subsequent to being operated. Equally reliable proof exists of several who, after many years of complete immunity, have died from other diseases. I would also state that the condition of four patients now living, from nine to twenty years after operation, was so unpromising at the time that no permanent benefit could be reasonably hoped for.

Now, facts like these cannot be ignored, and in my opinion are not difficult to explain, independently of the hemostatic and antiseptic attributes of the agent employed.

This singular immunity from relapse, so often observed, can in no other manner be explained than by attributing it to (1) the avoidance of operative or traumatic infection of exposed surfaces, and (2) the destructive effects of the heat on outlying tissues and cells already, doubtless, in a transition stage of degeneration and far beyond the line of excision.

¹ In the face of all this, what, I would ask, are honorable and fair-minded members of our profession to think of a statement like the following? "High amputation has gone by, just as we heard to-day, and it is more dangerous than hysterectomy. None of us did it better than Schröder, and he lost eight per cent of his cases" (Transactions of American Association of Obstetricians and Gynecologists, 1894). Though unworthy of notice, I shall merely say that all such attempts to ignore my work, or by implication to discredit my records, are disingenuous, unmanly, and unworthy our profession.

This well-grounded opinion, briefly stated, but emphasizes what I said more fully three years ago, and may bear repetition now :

"I am of the opinion that in the parametric tissue of many cancerous uteri, and much beyond what might seem to be the limit of disease, there exist some morbid cell changes due to faulty nutrition, or cancer germs, but in so undeveloped a state as to be inappreciable even by the aid of the most powerful microscope. Under such circumstances there is surely nothing unreasonable in surmising that cell proliferation, hitherto slow, or almost dormant, would be hastened, and that formative processes, so responsive to any kind of irritation, would be roused into active life through the traumatic stimulus of an operation and the exposure of more or less extensive raw surfaces. On the other hand, in the progress of an amputation by cautery, and where the heated knife is so long, and repeatedly applied (for such operations must be slow), the effects of the heat on outlying structures may be imagined by the shrivelled and comparatively small size of what had been, before operation, a voluminous cervix. In no other manner do I think it possible to explain certain phenomena following these operations by galvano cautery, *e.g.*, (1) absence of fever and almost all pain, pelvic or peritoneal; (2) the almost universal immunity of the scar tissue after canterization from secondary attack in the event of recurrence of the disease; and (3), in the case of relapse, the long respite obtained from reappearance of the disease in remote parts, even in the more unpromising cases of undoubted circum-uterine infiltration."

From this cursory review of the subject in its clinical aspect it would appear evident that utero-vaginal structures which have been severed by galvano-cautery, or from which diseased portions have been excised by such means, are left in a state more favorable for restoration to a normal, or at least a healthy condition, than where scalpel or scissors have been employed. Therefore this new departure in the technique of hysterectomy, whatever the condition demanding it, must necessarily be followed by results even better than the best yet obtained. How much greater, then, and far-reaching must the success be, whether in supravaginal excision or total ablation, for a disease so terrible and of a nature so prone to recurrence as cancer!

In conclusion, I have only to say that, having now demon-

strated the entire practicability of performing these important operations by the aid of the galvanic cauter, and to the exclusion of all ordinary cutting instruments, gynecologists who fail to take advantage of a method so safe, and yet so promising, assume the grave responsibility of withholding from the afflicted the most reliable means through which a cure, or at least a long respite from suffering and death, may be reasonably assured.

314 CLINTON STREET.

A CASE OF VERY EARLY ECTOPIC GESTATION,
WITH COMPLETE SEPARATION OF THE TUBE FROM THE UTERINE CORNU AT
TIME OF RUPTURE.

BY

J. F. W. ROSS, M.D.,
Toronto.

(With plate.)

Ectopic gestation is now so well understood that it is not necessary to make any explanation to readers of the present day. The old-time tragedies are being repeated from week to week in our large cities; they were not understood in the past, but they are understood in the present day.

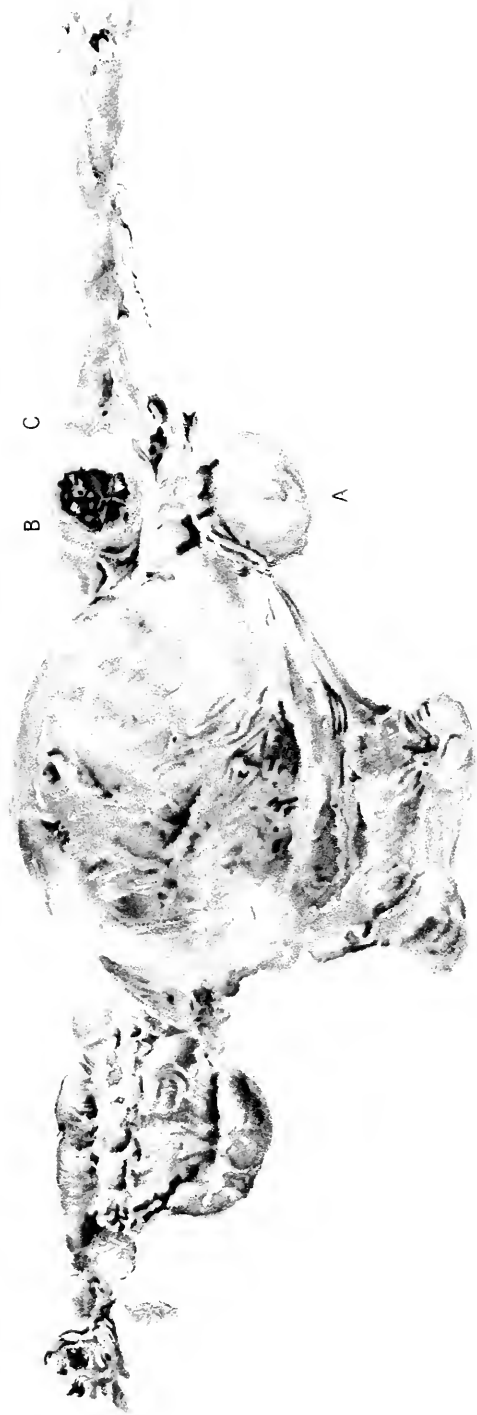
In my experience I have been able to diagnose unruptured ectopic gestation. I have operated on a number of cases and have seen the condition in all its varied phases, from the removal of a full-time child lying outside the uterus to the rupture of a tube filled with a two or a three weeks' gestation, or the case I am about to relate. The average period of rupture is, perhaps, the tenth week of gestation.

I have been so much impressed with this last case that I have had a life-size water-color drawing made of the uterus, for the purpose of demonstrating the manner in which the tube was broken off close to the uterine cornu at the time of rupture, and also to show the smallness of the calibre of the tube where filled with products of fecundation. It is difficult to realize how such a small alteration from the normal condition can produce such rapidly fatal results.

The present patient was 34 years of age, mother of three

children, and the last child was born five years before. Though not robust, she had been in good health until one week before I saw her, and she complained of a feeling of weight in the pelvis, but paid very little attention to it. Her husband having left the house to attend to his work, she was standing in the doorway at 8 A.M. when she was seized with sudden, violent pain in the abdomen in the neighborhood of the navel. She was scarcely able to drag herself into the house and dropped prostrate on a chair. The husband returned about 9 o'clock and found his wife in this condition. The doctor was sent for, and on his arrival she was cold half-way to the elbows and knees, pale, evidently suffering from severe shock. I was sent for at 11 P.M., and on my arrival at the house, after looking at the patient, said to the doctor that the case looked exactly like one of ectopic gestation with intraperitoneal hemorrhage. We examined into the symptoms carefully and could find no evidence of gestation. The patient had been unwell naturally ten days before; she had been as regular with her menstruation as clock-work; had no breast symptoms, had had no vomiting. I passed a catheter and attempted to draw the water, and removed but a wineglassful. The patient stated that she had not passed water since morning. Feeling satisfied that the bladder was emptied, the question then came up, Could she be suffering from ruptured bladder? The pallor pointed, however, to intraperitoneal hemorrhage. Vaginal examination revealed nothing. On palpation of the abdomen it was evident that there was a collection of fluid in the peritoneal cavity. The patient was almost pulseless and lay turned on her right side, and complained of a dragging feeling when she turned on her back. The uterus was pressed toward the left and the effusion of blood was on the right side of the abdomen, and yet the ruptured tube was on the left side.

Thinking that she might rally by morning, I advised her immediate removal to the hospital. She was taken there at 3 A.M. and all arrangements made for early operation in the morning. On my arrival at the hospital in the morning I found her still almost pulseless, and after consultation it was decided that it would be impossible to give her ether or chloroform without having a fatality on the table. I therefore decided to open the abdomen by means of ethyl chloride as a local anesthetic and put in a drainage tube. By doing so, and by allowing the blood



VERY EARLY ECTOPIC GESTATION - ROSS.
A. LEFT OVARY. B. CORNUAL END OF TUBE WITH GESTATION
C. FALLOPIAN TUBE COMPLETELY SEPARATED BY RUPTURE.

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to escape from the peritoneal cavity, I thought the shock might be diminished and that we might be able to complete the operation under chloroform or ether at a subsequent time. She had very little pain while the opening was being made; this was done in a few seconds. I noticed that when the peritoneum was grasped with a pair of forceps she winced. The skin and the peritoneum seemed to be the only sensitive structures. While finding the cul-de-sac of Douglas for the placing of the drainage tube, I passed down my finger and took the opportunity of feeling rapidly the tubes on each side. The right tube and ovary I found healthy; the left tube I felt was not in normal condition, and concluded that ruptured ectopic gestation was the cause of the hemorrhage. It was impossible, however, to draw this up to ligate it without the use of an anesthetic. At the subsequent operation, of which I will speak in a few moments, it was a difficult matter to ligate the stump.

Through the drainage tube the blood that was free in the abdominal cavity escaped and ran out in a pool on the mattress, as the patient insisted on turning on her side. Her friends remained with her that afternoon and evening, expecting her to die every minute; but she rallied a little, and on Sunday morning (forty-eight hours after the primary rupture) the pulse dropped to 112. Peritonitis set in, as a consequence, no doubt, of the large amount of blood clot scattered throughout the peritoneal cavity (a peritonitis I have frequently seen follow on the intraperitoneal extravasation of blood, and a question deserving some consideration at the hands of the pathologists), and the patient became distended. All fresh hemorrhage had practically ceased during the Sunday, but early on Monday morning it began again.

After consultation with one of my confrères we decided that, although the case was almost hopeless, it was our duty to make an effort to tie the bleeding vessels. Ether was administered with the greatest caution and with great difficulty. I enlarged the opening with ethyl chloride during the administration of the ether, to save time, and drew up the stump. The seat of the trouble was close to the uterine cornu in the isthmus of the tube, and when the ligature was placed it was found necessary to include in it part of the cornu of the uterus. *The tube was completely separated from the portion that remained attached to the uterus.* The part containing the ectopic gestation was no

thicker than an ordinary lead pencil, and the pregnancy it contained could not have been of longer duration than about two weeks. As it was placed in the narrowest and least elastic portion of the tube, the expansion produced by its growth necessitated an early rupture of the tube. The abdomen was washed out as rapidly as possible, large handfuls of clots were removed, and the patient put to bed. She lived only twelve hours longer, though the hemorrhage ceased after the application of the ligature.

It was a difficult matter to decide what we should do for the best. The patient was at death's door from the moment she was first taken with the pain while standing on her doorstep. There was no history of any previous inflammatory attack; ovaries and tubes were in a healthy condition and there was not a single adhesion found anywhere. Why this ovule should have become blocked and fecundated just where it was it is impossible to explain. I have no doubt that in cases of ectopic gestation in which we have very early rupture, the seat of the gestation will be found to be in the isthmus of the tube near the uterine end. In my experience with these cases the gestation has always heretofore been in some portion of the outer two-thirds of the tube. When ectopic gestation occurs without producing symptoms until the period of rupture, it will usually be found that the gestation is of short duration, and in such cases there will be no symptoms whatever to aid one in his diagnosis. The woman will simply be collapsed and bloodless, two important points pointing to the diagnosis of intraperitoneal hemorrhage. The pallor in these cases is usually quite marked and greater than in cases of ordinary shock.

Last summer I saw a case of ectopic gestation. I was out of town and telegraphed for. On my arrival preparations had been made for immediate operation. The lady had retired feeling almost as well as usual the night before, and at 2 A.M. her husband was aroused and she told him that she had terrible pain in the abdomen and felt very faint. He recognized at once that the case was serious, and sent for a doctor who concluded that immediate consultation should be called. Two or three professional gentlemen were summoned, and they all decided that immediate operation was called for and that the case was one of ruptured extrauterine pregnancy. The lady had just returned from a canoeing expedition with her husband, and, with the

exception of a little pelvic discomfort, had felt well. In this case an immediate operation was performed and the patient never rallied.

I was impressed at that time with the idea that we should perform immediate transfusion in such cases before proceeding to do a celiotomy. Since then I have not had an opportunity to carry out this practice until the case first reported occurred. Instead of immediate transfusion we used the mediate with prepared solution. This did not seem to have very much effect; the patient began to rally long after the transfusion had been performed. I have come to the conclusion, therefore, that the element of shock is of as much importance as the hemorrhage. When the blood was allowed to escape from the abdomen by inserting a drainage tube the patient began to rally.

In reviewing the history of such extreme cases I cannot see that it is possible for the surgeon to save them. In the first place, there are no symptoms to warn the attending physician; in the second place, the symptoms are so sudden and severe that the added shock of an abdominal operation will turn the balance the wrong way, and if the hemorrhage is allowed to continue the patient will die, and if the abdomen is not cleared of the large mass of clot poured out into its cavity a fatal peritonitis will supervene. This is only the second case of ectopic gestation that has died, after operation, in my hands.

481 SHERBORNE STREET.

PERITONEAL IRRIGATION AND DRAINAGE.

BY

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THE latest works on abdominal and pelvic surgery contain, like the older books, very short and misleading articles on the indications for peritoneal irrigation and drainage, and still less explicit are the directions how to use these agents for good intelligently and correctly. This diversity of opinion among book-rack authors leaves the inexperienced beginner in a position of perplexity and doubt as to the special course he is to

pursue in his early work. No one should undertake to irrigate or drain a peritoneal cavity before he has witnessed and assisted a master in this special branch of our healing art in a large series of cases and has mastered his teacher's technique.

If you hear an operator condemning drainage, and on examining his mortality column find a death rate of eight to twelve per cent in a series of cases, and a number in this list under heading of "cause of death unknown," "peritonitis," "heart failure," "hemorrhage," you may rest assured that some deaths could have been averted by the irrigator and tube. "People seldom improve when they have no model but themselves to copy after." To illustrate this diversity of opinion among gynecological and surgical writers I will, with your kind indulgence, quote from a few of the standard text books. One author condemns drainage and on the same page tells how he uses it: "A rubber tube, perforated for three inches of its abdominal end, and long enough to run out over the edge of the bed into a basin filled with carbolized water to prevent the entrance of germs." The same writer speaks of secondary drainage to remove putrid discharges collected in the pelvis, to prevent septic symptoms, and adds: "Of course no one would think of performing this operation until septic fever is evident."

Another writer says: "If a drainage tube has been used it should be well *corked* [*italics mine*] until symptoms of blood-poisoning arise, when it is to be opened frequently to admit of the escape of any fluid that may be in the cavity, . . . and a hard-rubber syringe passed to the bottom of the tube to remove what has not run out."

A noted German author and operator writes: "After a vaginal and supravaginal hysterectomy I continue to use drainage of the pouch of Douglas, in spite of various publications which state that the omission of this is not injurious. I attribute my success essentially to this treatment in connection with two observations that I have made. One case perished from septic peritonitis in which the tube was allowed to escape and a collection of secretions formed at the bottom of Douglas' pouch. In the second case I was induced by the publication of successful cases without drainage to omit the latter, which I otherwise would have employed. The patient recovered well from the shock of the operation; in the course of the second day, however, an extremely threatening collapse occurred, with pallor

of countenance and increased frequency of pulse. The symptoms disappeared at once, as I had the patient sit up and separated the sides of the opening in the vault of the vagina by passing my fingers into it. A large amount of sticky and foul fluid was discharged. From this moment the patient got better." He says on the indication when to remove the drainage tube: "Usually between the third and fourth day a peculiar period of drawing is experienced in the umbilical region. I then remove the tube. Since I have employed this method of treatment the results of supravaginal amputation have become essentially better and surer." This great operator lets this great lesson from Nature in drainage teach him nothing. In seventy-seven salpingectomies this same operator had fourteen deaths with no history of drainage. Of this number ten died of sepsis, or the result may be traced to this source as a cause.

One aspirant to operative fame, when discussing drainage with a professional brother, said: "I do not see how you can drain the pelvis with the tube standing straight up." His wise senior replied: "Turn the patient on her side and let it run out."

I have seen a drainage tube pushed down into the pelvis and the dressings and bandage applied over its outer extremity, and that, too, by a teacher before his class, at the same time remarking that he had had a number of fecal fistulæ following the use of the tube, and that it was very troublesome to keep the dressings clean and dry.

Hydrostatic pressure on the diaphragm has been advanced as a counterindication to the use of the irrigator. An outward flow during your irrigation is obtained if used properly; you rarely wash the diaphragm unless you have been using the Trendelenburg position and had your patient's diaphragm and liver flushed with pus or other septic fluids during the operation. You do not use water hot enough to paralyze the solar plexus, as some apprehend.

The general surgeon long since called attention to the fact that old abscesses with a limiting wall, if disturbed, in many cases lead to systemic infection by changing the character of this breastwork to one with absorbing functions. While this fact was long since recognized, it was not suspected that the changes wrought in the surrounding tissues by a surgical interference lead to a secondary infection by the admission of new

agents into the abscess cavity, yet every effort was made to keep an outward flow of the discharges by drainage, through counter-openings, vapor baths, cathartics, diuretics, etc., etc., all drainage agents.

If we accept or reject the germ theory of the suppurative process and its prevention by *antiseptic* or *aseptic* methods, the truth remains unaffected that it has been through this channel of purification that we have learned that cleanliness in surgery is next to godliness. If germicides are or are not used while operating, the diluent acts as a solvent to the dirt or as a destructive agent to the pathogenic bacteria, and the same end is obtained provided both methods are carried out with equal care and diligence, although possibly by a different process—one by washing away the dirt or germs present, and the other by destroying or inhibiting those not destroyed. The object in either method is to reduce to a minimum the amount of chemical substances or number of germs, so that the functions of absorption, destruction, and elimination are not overtaxed, at the same time reducing to the lowest ebb the fermentative fever tendency by removing at the time of the operation as much of the fever-producing agent as possible by irrigation and by keeping the locality clean by thorough drainage afterward. There are localities in the body where germicides cannot be used in strengths sufficient to have the action desired without producing toxic effects. Fortunately it is in this same locality that we have the greatest absorptive and eliminative function developed.

The same principles hold good in draining the peritoneal cavity that are applicable to other parts of the body. No surgeon, with all the antiseptic precautions possible to be used in opening a diffused abscess of the thigh or other parts of the body, would think of such a thing as at once closing the wound hermetically, leaving many broken-down shreds of diseased tissue dangling in the abscess cavity. He may have irrigated the cavity thoroughly with a "1:1000," yet he would not feel it safe to close the wound until after he had made counter-openings and introduced the drainage tube, this being as near ideal surgery as it is possible to obtain in these cases. The presence of the tube does not have special healing virtues, only in so far as it keeps the parts free from the poisonous discharges and permits the structures to come in contact and heal in their

normal relations, and at the same time, by this system of drainage, avoids the absorption of septic and putrid material.

Some operators have endeavored to inaugurate an ultra-refinement in the indications for the use of drainage, and have advised the surgeon to have constantly present at his sections an experienced bacteriologist, who, with sterilized platinum wire, glass covers, and an oil-immersion lens, will quickly mount, stain, and examine any suspected fluid or tissue for pathogenic micro-organisms. The operator, if his work is finished before the germs are discovered or the number of neighborhoods estimated, will wait with fear and trembling for the verdict as to whether he is to introduce the drainage tube or close up and let Nature battle with a few staphylococcus or streptococcus settlements, and if the patient dies he will console himself and the friends of the departed with the assurance that it was a dispensation of the good and all-wise Providence. I would advise, when in doubt as to whether to drain or not to drain in a given case, to introduce the tube. Bacteria may not be discovered in a fluid taken from one part of the pelvis, yet in another location, within an inch of that one, myriads of pyogenic germs may exist. Much better a drainage in the hands of a well-trained operator than a microscope.

If twenty per cent of the cases of diseased uterine appendages and a large percentage of cases of peritonitis be due (as is claimed by some who oppose the use of drainage) to tuberculosis, I cannot understand why drainage should not be used in every case where such a diagnosis is probable, especially in the modern recognition (1862 to 1895) of the curative effects of drainage in tubercular peritonitis.

Aseptic fluids do no harm if absorbed, but it must be remembered that a peritoneum from which a large growth has been removed, or one that has sustained much traumatism, will not absorb rapidly, but will be disposed to give out much fluid, which, if left in the vicinity of the intestines to become stagnant, will in all probability become septic by bacterial invasion from this canal. If any pus-forming agents are introduced during the operation, or even if some are already present in *limited numbers*, the presence of much blood in the peritoneal cavity prevents to some extent the absorption of these pathogenic bacteria and their destruction by the phagocytes, and thus, being allowed to remain, they rapidly multiply in this fertilized hot-bed,

producing a rapidly fatal peritonitis in the majority of instances. If this truth is accepted no surgeon should fail to irrigate and drain after an operation for the removal of pus tubes, dermoids, etc., etc., or where there was much effused blood during or following an intraperitoneal operation. A peritoneum cannot absorb liquids as long as it is, so to speak, "water-logged" or edematous. Any method or treatment, whether by drainage or hydragognes, has the same object in view—that is, the removal of the effused liquid or its elimination by hastening its absorption. In "hulling" out adherent pus tubes or dermoids, or breaking up adhesions, many surfaces are of necessity denuded of peritoneum. These surfaces have very poor absorptive powers, yet they pour out much fluid which, if not removed early, is likely to become putrid or septic. It is a well-recognized fact that a traumatism produced by aseptic agents leading to plastic inflammation is localized to the seat of the injury and does not spread much beyond this location as long as the surroundings are kept aseptic; also, that the germ-producing powers of a once begun septic peritonitis are unlimited, and the bacterial hot-bed being located within the cavity affected accounts for its wide spread. With this truth before us we should in every case do all operations, if not antiseptically, aseptically, and, to insure the maintenance of this clean condition, endeavor to keep the cavity as clean as possible after the operation by not only draining the non-decomposed secretions and thus reducing the severity of the aseptic fever to its lowest ebb, but at the same time reducing to a minimum the number of pathogenic germs accidentally or unavoidably introduced during the performance of the operation and thereby thwart an attack of acute peritonitis. In cases operated on where there existed at the time of the operation a free dropsical fluid, a drainage tube must be introduced, as the peritoneum cannot absorb anything when in this condition, and by keeping it dry a few days the effusion in many cases ceases to reaccumulate, unless the presence of the fluid be due to malignant disease of the peritoneum or other abdominal or pelvic viscera. In old and debilitated patients the absorptive powers of the peritoneum are lessened, and in these cases we find an indication for drainage. Operations involving structures in a state of inflammation are always followed by a profuse flow of serum, which is more liable to become purulent or septic than if the structures were healthy. There is less pain in the cases

that are drained, as the pain from pressure on the nerves caused by the effused liquid is removed with the liquid. Fluid is liable to undergo decomposition from contamination through the intestinal walls. The accumulation of fluid in the pelvis must be prevented, if possible, after all operations.

Drs. Price and Wylie years ago called attention to the fact that many deaths from so-called shock were in reality deaths from concealed fatal hemorrhages, and advocated the introduction of the tube in those cases in which there was free oozing during or following an operation. The presence of the tube, by keeping the peritoneal cavity free from lymph, is a direct and most efficient hemostatic. This fluid, normally present in small amount, is greatly augmented by the manipulation of the peritoneum during the performance of an abdominal section, and, like the moist fomentations over the scarified surface of any other part of the body, promotes bleeding and prevents the formation of firm clots in the mouths of the small blood vessels torn across while breaking down adhesions.

Irrigation.—Freshly boiled distilled or filtered water cooled to 102°–110° F. should be used in irrigating. After the performance of the operation, and before the stitches have been introduced, the cavity should be thoroughly washed by means of an irrigator. This consists of a rubber tube three feet long and three-quarters of an inch in diameter, to one end of which is attached a funnel, to the other a hard-rubber nozzle about ten inches long with side perforations, the distal end being closed except for a small opening in the centre. The patient is turned on her side toward the operator, who, with two fingers of the left hand introduced near the lower angle of the abdominal incision and slightly separated, introduces the nozzle of the irrigator (having first started the water running) into the inferior angle, guiding it by the fingers to the lowest recess of the pelvis and moving it about from one locality to another, while the water is being poured into the funnel from a pitcher held in readiness, to be used for this purpose only.

Just before beginning the irrigation the anesthetic should be pushed a little. If this precaution is not observed the patient will resist your efforts and cause the intestines to protrude through the incision, causing unnecessary delay in replacing them and keeping them replaced. This is an illustration of the stimulating and reviving effect of the hot water. While thus

using the water it is surprising to see with what rapidity and force the large blood clots and other foreign bodies present are forced from the cavity. During the flow of the water the operator should gently move the viscera around, that the fluid may come in contact with every nook and corner. As long as the water comes away blood-stained, especially after using considerable hot water, you may know that some hemorrhage is going on, except in extrauterine pregnancy with rupture or where you find much free blood and soft clots. Here the water will continue to return blood-stained as long as you use it, and will lead the inexperienced operator to think that an alarming hemorrhage is going on and cause him to seek the source of the bleeding. The blood-stained fluid returning through the incision is much darker in this condition than if a hemorrhage is actually going on during your irrigation. The operator should always test the temperature of the water by introducing his hand into each pitcherful as it is being raised to the height of the funnel, which is held by the assistant. The irrigator should always be started to running before the introduction of the nozzle. In some cases it will be necessary to use much more water than in others, as in cases of ectopic gestation with rupture in which a large quantity of blood is found, or in ruptured pus tubes or profuse hemorrhage from broken-down adhesions, etc., etc. Its hemostatic effects are often quickly noticed, much to the satisfaction of the operator where there is an alarming hemorrhage from torn vessels or a general oozing. Its beneficial effects are also perceptible in many cases in preventing shock or causing the patient to rally from this condition, if it exists. If your operative technique has been good and your surgery not too "chronic," your irrigation satisfactory and your drainage tube *properly introduced*, you may expect a recovery in a larger per cent of these cases than you could expect without these agents.

In addition to the cases mentioned, irrigation should be used in all cases of intestinal and bladder injuries where there is a perforation and extravasation, also in appendicitis and surgical operations on the gall bladder and kidneys where there is an escape of bile, urine, or pus. In using the irrigator avoid too rough handling of the nozzle, lest you disturb your pedicle ligatures and start up an alarming hemorrhage. After thoroughly flushing the cavity the residual fluid is removed by soft, clean

sponges. A small quantity of the clear fluid left can do no harm. In fact, in some cases, as in ruptured tubal pregnancy, it is absolutely impossible to leave the peritoneal cavity free from clots and fluid. In this condition water is left on purpose, that it may aid in liquefying the soft clots entangled in the folds of the omentum and mesentery, that the liquefied product may be removed by aspiration through the drainage tube, and the work of digestion and absorption by the peritoneum lessened and hastened. Having completed your irrigation and introduced your *silkworm-gut* sutures, before tying them you introduce the drainage tube, which should be used with rare exceptions, where in your opinion it has been necessary to use irrigation. Some operators introduce an extra stitch at the site of the tube, and do not tie it until the tube is removed. This I think unnecessary. The tube is a straight glass one of lengths and sizes to suit individual cases, as one tube cannot be adjusted to accurately fit all cases. The length varies from three inches for children to nine inches to meet the requirements of very fat subjects with greatly thickened abdominal walls and a pelvis of great depth. The average length, however, is six inches. I have not seen a *good* tube the diameter of which was over five-eighths of an inch or less than one fourth. The tubes are straight. The end introduced has an open mouth, that large pieces of detached shreds of adhesions or blood clots may be removed by aspiration. Many small, round perforations mark the sides of the tube for the first inch and a half. The distal end is flanged (not down on the sides an inch, as I have seen in many tubes) the same as you see in the commonest tube. This projection retains the sheet of rubber dam and at the same time prevents the escape of the tube into the abdominal cavity—an accident not likely to occur if the tube is a properly selected one and introduced in the right way. Having selected your tube—which, by the way, must be done beforehand, that it may have been properly prepared before you are ready to use it—you introduce it, precisely as was directed for the introduction of the nozzle of the irrigator, into the pelvis or the region to be drained. While your assistant steadies the tube and thus retains it where you intend that it shall remain, you tie your sutures and accurately adjust the divided structures, making the tissues closely fit the circumference of the tube. After removing the fluid collected in the tube at this time by means of a long-nozzled

piston syringe and satisfying yourself that everything is all right, you take a piece of rubber dam about fifteen inches square with a small niche in its centre. By stretching this little opening you are enabled to slip it over the flange of the tube, and upon being released it contracts, so accurately fitting the tube as to make it impervious. By this means you avoid soiling the dressing by the escaping drainage, should it, from carelessness or inattention on the part of the nurse, be permitted to overflow. Again removing any fluid collected, you cover the opening in the tube with absorbent cotton, and, neatly folding the four corners of the rubber dam over this, entrust it to the care of your assistant while the many-tailed abdominal binder is being adjusted. One corner of the folded dam is secured to the binder with a safety pin, and after emptying the tube again your patient is put to bed surrounded by the usual precautions.

The nurse is instructed when and how to cleanse the tube. By this arrangement of the dressings the tube can be pumped out as often as it fills, without in the least disturbing the patient by the removal of the dressings.

Every aseptic precaution should be observed in the emptying of the tube. The hands of the nurse or the physician should be clean, the syringe should be scalded each time before using, and the mouth of the tube must be cleansed by a pledget of absorbent cotton before the syringe is introduced. While cleansing the tube with the syringe, if the piston fails to slip easily you may know that a blood clot or shred of some adhesions has become engaged, and by withdrawing the nozzle you may, and often will, succeed in removing the foreign body. After drying the tube a fresh supply of absorbent cotton is placed over its mouth, and the corners of the rubber dam neatly folded over it and pinned. The same precaution should be observed at each cleansing of the tube. The tube should be raised a quarter of an inch and rotated two or three times for the first twenty-four hours; this relieves pressure on the intestines, if any exists, and at the same time prevents the omentum becoming entangled in the holes of the tube—an accident more of anticipated dread than of actual occurrence. After removing the glass tube, if there is any fluid likely to collect within the next twenty-four hours, a small rubber tube may be left in the site of the glass tube by introducing it through the glass tube before its removal. This, in turn, can usually be removed on the following day.

By using drainage as I have described, the bandages and dressings are kept clean and dry and do not have to be disturbed until the time arrives for removing the tube or stitches. When the tube fails to show much over a drachm of fluid collected in an hour or two, the time has come to remove it, unless this small amount of fluid is purulent or offensive. Ordinarily the tube can be removed on the second to the sixth day with safety. The opening soon closes, and there is no more danger of a ventral hernia than if drainage had not been used.

Gauze is a very good protector against the invasion of septic germs in new territories, and this is exactly what it does when it is used to drain the bottom of the pelvis. It fails to remove débris and micro-organisms. The gauze may be used where it is of greatest import to protect the upper peritoneum from invasion, in cases where there is a danger of this nature anticipated, as where a pus sac has been stripped from a bowel or where the development of a fecal fistula is feared; but even here a glass tube should be inserted to the bottom of the pelvis. I never use the Trendelenburg position. The pelvic cavity in pus cases has, by a slow process of inoculation, developed more or less of an immunity, the extent of which no one can foretell in a given case. The upper or susceptible peritoneum may be said to exist above the pelvic brim. Any position of the patient during an operation that favors the infection of this very susceptible area must of necessity increase the dangers from the operative procedure by this new infection. This upper peritoneum cannot be drained as thoroughly as the pelvic cavity. I believe bilateral dorsal drainage should be resorted to in general peritonitis.

Some decry the use of the drainage tube in the abdomen lest infection occur, and within a few lines recommend draining through the vagina, a cavity the normal habitat of a host of fermentative and pyogenic micro-organisms.

Deductions.—Drainage is a life-saving process when used properly.

To use it is not an admission on the part of the surgeon that his work during the operation was imperfect.

The use of the tube alone does not produce or leave any condition that favors the development of hernia.

The omentum or other structures do not become entangled in the openings of the tube.

A small-size flint-glass tube with small openings and open end should always be selected for pelvic drainage.

The tube does not produce fecal fistulæ.

The tube should be used when in doubt as to the absence or presence of drainage indications.

To depend upon the microscopic findings as to whether a given case should or should not be drained is seemingly scientific, but is neither necessary nor practicable.

Gauze drains should rarely be used, and should always be supplemented by a glass drain.

There is no danger of infecting the patient through the tube, if the attendant is properly instructed.

Where irrigation is indicated drainage should be used. Many cases will require drainage where irrigation was not indicated.

The emptying of the tube and the time of its removal must be governed by the indications and progress of individual cases.

Irrigation with a normal saline solution cleanses more quickly and effectively than the most thorough sponging.

The irrigating fluid should not be too hot to be comfortably borne by the operator's hands.

A CASE OF POLIOMYELITIS ANTERIOR.¹

BY

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THE case I present is not one in which any great success has been obtained, but because *apparently* the child has improved, and I was much disappointed, in taking my measurements a day or two ago, to find so little real improvement in respect to the growth of the paralyzed muscles.

The history briefly is as follows: K. B., white, æt. 14, came with her mother to my clinic at the Emergency Hospital on August 6th, 1894. The mother stated that she thought the trouble started when the child was 2 years old, as she cried a

¹ Read before the Washington Obstetrical and Gynecological Society, January 4th, 1895.

great deal and her physician said she was threatened with spinal meningitis. She seemed to be sore to the touch and in pain, and was constantly throwing her head back. The physician treated her for this, at irregular times, for about five years.

She had measles at 3 years of age and scarlet fever at 5 years.

When she was 9 years old she would soon tire when walking and drag her left foot. The mother thought she was lazy and allowed her to go about, dragging the foot in walking, without medical care for three years. Two years ago she was trying to dance and fell heavily on the end of her spine. For days she could scarcely move or get out of bed. When she fell she had to be helped up. She suffered greatly with pain in the back, especially at the menstrual period, which commenced at this time, that is, when she was 12 years old. She had no medical treatment until one year ago. She was then suffering from severe headaches and constipation, complained of pain in back, and her hands and feet felt numb. She was treated by a homeopathic physician, who noticed that the foot dragged, but he did not treat her for it. It was about this time that she came to the dispensary. On examination I found that there was a half-inch atrophy of left calf and that the peroneal muscles and tibilis anticus failed to respond to faradism, but with the galvanic current reaction could be obtained. The other muscles seemed to be normal.

The case was considered one of poliomyelitis anterior, and the treatment was strychnia and syrup of the iodide of iron, with the galvanic current twice a week.

The symptoms that then presented themselves are as follows:

Etiology.—Scarlet fever or measles.

Onset.—Gradual; much worse after the fall on end of the spine.

Mental condition.—Normal.

Paralysis.—Very weak in leg which dragged.

Atrophy.—Half-inch over calf.

Knee jerk.—Slight exaggeration.

Deformity.—Slight talipes valgus.

Sensory symptoms.—Leg much colder than other.

Reaction of degeneration.—Evidenced by the failure of the muscles to respond to the faradic current, and with the galvanic current the anodal closure contraction was equal to if not exceeding the cathodal closure contraction, which condition is

exactly opposite to that obtained in health. There have never been stupor, delirium, or convulsions, and there is no trouble with bladder or rectum. According to my own measurements there has never been any atrophy of the thigh, but on September 17th one of the members of the clinic found the left thigh fifteen and a half inches and right thigh sixteen inches. I could not find this difference, nor was there atrophy of any of the muscles of the arm and forearm. You will notice that the ankle bends inward, producing the deformity of talipes valgus, due to the paralysis of the tibialis anticus muscle. This muscle arises from the outer tuberosity of the tibia, the deep investing fascia of the leg, the intermuscular septum, and the interosseous membrane, and also upper two-thirds of outer face of shaft of tibia, and descending terminates in a tendon which, passing beneath the anterior annular ligament, is inserted in the inner and under surface of the internal cuneiform bone and base of metatarsal bone of great toe. Its action is to flex and invert the foot. Therefore its non-action or paralysis is to allow the deformity of talipes valgus.

This child has been taking the strychnia constantly and electricity twice a week for several months, and I think there is some improvement, for the following reasons: First, the mother states that she is very much improved and that she notices a decided change for the better. Secondly, the girl herself says that she is much stronger in that leg than formerly and can walk with perfect ease and with no dragging or pain in that foot. Thirdly, in measuring closely I can make only one-quarter inch atrophy instead of one-half as before. She does apparently walk better and can stand fairly steadily on that foot alone, and, above all, the muscles respond readily to the faradic current now. At present her treatment consists of strychnia internally, a strong galvanic current down the spinal cord, and the faradic current to the muscles of the leg.

To the patient perhaps the most important thing is the prognosis, while to us the most interesting is the pathology.

According to Gray there is almost always left an incurable residue of paralysis. The amount of this depends upon the severity of the disease and the thoroughness of the treatment. The worst cases are those in which the paralysis is complete and in which the nerve and muscle undergo in a few weeks the typical changes of degeneration; while the best cases are those

in which the paralysis is incomplete and in which there is only moderate diminution for a few weeks in the response to faradism and galvanism, without any increased galvanic excitability of the muscle or alteration in the healthy polar formula. Hammond gives as a prognosis that infantile spinal paralysis is not an affection liable to terminate fatally, therefore the importance of the prognosis relates mainly to the paralysis and atrophy. If the disease has advanced so far that the electric contractility of the affected muscle is lost to the induced current, the cure will be difficult and the treatment protracted; if the primary current is also powerless a cure is impossible.

An interesting article was published recently by Dr. C. S. Caverly, of Rutland, Vt., who, in describing an epidemic which occurred there in June, 1894, went deeply into the morbid anatomy and pathology of this disease. He described the symptoms and wrote to several eminent men for a diagnosis, such as Starr, Jacobi, and others. Most of them, except Jacobi, I believe, gave as their opinion that it was the disease in question, and Starr, in describing the pathology, quotes Goldschreider as follows: "That the disease begins with a very intense congestion of the central arteries of the spinal cord, which come up on each side of the central canal and spread out in the central gray matter and into the anterior horns. These arteries have branches passing backward in the gray matter of the posterior horns, but the posterior horns are chiefly supplied with blood from the peripheral arteries and hence are less affected when the inflammatory condition is limited to the distribution of the central arteries. After engorgement of all the arterial twigs, diapedesis occurs and the surrounding nervous tissue is permeated by small cells and by serum. It is this choking of the gray matter by inflammatory products which leads to suspension of functional activity; and when, as in many cases, from impoverished nutrition the cells of the anterior horns are actually disintegrated by the inflammatory products, permanent destruction of nerve tissue ensues." "Goldschreider," Starr goes on to say, "believes, therefore, that the primary condition is a congestion in the domain of a definite set of arteries, quite comparable to the condition occurring in the lung in pneumonia and in the intestines in typhoid fever." Starr quotes Siemerling also as follows: "After a careful review of all literature we reach therefore the following conclusion: that in the pathogenesis of infantile spinal

paralysis the inflammatory lesion of interstitial tissue in connection with a distribution of blood vessels, especially in the region of the anterior spinal arteries, plays the chief rôle. A primary inflammation of the ganglion cells, in the sense given by Charcot, is not to be admitted."

All the writers that I have consulted give the lesion as occurring in the anterior horns of the gray matter. Gray says that of late years, as more autopsies have been made, it has been shown that the lesion is really a local or focal myelitis, with the usual attendants of a myelitis, such as congestion, softening, abundance of granular corpuscles, etc. The arteries are generally gorged with blood, and in a case of Archambault and Damaschino's the whole of one anterior horn was fairly flecked, like a coarse veil, with these enlarged capillaries. Hammond states that the morbid anatomy of infantile spinal paralysis is to be studied in the spinal cord, the nerves, the muscles, and the bones, the lesions in the three latter tissues being secondary to those existing in the cord. He cites a case of a child upon whom a post-mortem examination had been made. The examination extended to the muscles, the nerves, and spinal cord, and revealed the existence in the cord of atrophy of anterior horns of gray matter and the antero-lateral columns—in those parts of the cord from which emanated the nerves going to the affected muscles.

The result of the observations of Roger and Damaschino, as quoted by Hammond in histological examinations of three cases of infantile spinal paralysis, are as follows:

1. The characteristic alteration of infantile paralysis is a lesion of the spinal cord, of which the atrophy of nerves and muscles is a consequence.

2. This lesion is more particularly seated in the anterior portion of the gray spinal substance, where it is seen in the form of centres of softening.

3. This softening is of an inflammatory character and the disease is myelitis.

4. Infantile paralysis ought, therefore, to be called infantile *spinal* paralysis, and moreover its nosological position is certainly among the affections of the cord and among the myelites.

We see, therefore, that there are some slight differences of opinion about the pathology, but all claim that the lesion is one of the anterior horns of the gray matter.

I desire to say only a few words about the treatment. It seems perfectly logical to give large doses of ergot in the congestive stage, but Hammond says that it is of great service even after the febrile stage has subsided and the trouble manifested by paralysis. After atrophy has commenced ergot is of no use and strychnia is the main stand-by. Gray says that the objects of treatment should be (1) to arrest fever and control other reflex disturbances, if there should be any; (2) possibly to affect the cellular process in the anterior horn; (3) to affect the degenerated or degenerating nerve and muscle. The reflex disturbances should be controlled by bromide of sodium, or, if there should be much pain, an opiate can be given of morphia and atropia. He also recommends sinapisms in acute or subacute cases, and in chronic cases the ice bag to the spinal column; this should be removed if it produces chilliness. He is a great believer in quinine for the acute and subacute cases. Ergot and iodide of potassium are also used. Electricity, of course, is the great agent for the degenerated nerves and muscles. Galvanism should be applied to the spinal cord two or three times a week, and should not be too strong, say about five to ten milliamperes for a child and stronger for adults. Faradism should be applied to the affected muscles, if contractions can be obtained without producing too much pain. Massage and gymnastic exercises also are beneficial. Certain braces and apparatus for supporting the muscles in deformities should be used also and constitute a very important part of the treatment.

THE AFTER-TREATMENT OF FOUR CASES OF SALPINGO-OÖPHORECTOMY BY ELECTRICITY:

A TEXT AND A COMMENTARY.¹

BY

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FOLLOWING an operation for the removal of the uterine appendages for actual disease of these parts one of several things may happen: the patient may die as the direct result of the surgical interference, or recovering from this she may go on to

¹ Concluded from p. 405.

complete cure of the original trouble; or there may be simple relief, or contrarily she may be in no way benefited, or perhaps may even be made worse thereby.

Deaths are inevitable to the operation of salpingo-oöphorectomy, though the number varies greatly in the experience of different operators, and even with the same operator at different times. Frequently the surgeon will have a run of favorable cases, forty or fifty or even more without a death, and operators are particularly fond of dwelling upon such truly wonderful results. Here possibly the element of chance is considerably in evidence, though skill is undoubtedly the prime factor. In spite of such series of cases, in spite of skill, care, proper selection, and all the other elements that go to make up good surgery, deaths are bound to occur in the experience of every surgeon, often unexpectedly, and one who can boast of a death rate as low as three per cent has something to be truly proud of—and usually is, to judge by the fondness with which he dwells upon such, thus indicating the light in which he regards them, and that even he considers them as worthy of special note. Most surgeons have a larger mortality than this; in fact, if we are to believe an editorial writer in the *Annals of Gynecology* (May, 1894, page 474 *et seq.*), the average in this country is vastly in excess of even ten per cent in abdominal operations of all classes, of which cases of salpingo-oöphorectomy form the largest number. Tubo-ovarian disease, although productive of much and prolonged suffering, rarely causes death. Outside of the presence of pus we may safely affirm that in the vast majority of instances it never induces a fatal issue, and even where pus is present death infrequently follows. From the numerous reports of cases of “pus tubes” and “pus ovaries” operated upon we would be led to suppose these conditions to be extremely common; yet the reverse is true. Ovarian abscess we know to be rare, while pus tubes will be found in a comparatively small proportion of all gynecological cases. It has been affirmed, in fact, by two eminent American gynecological surgeons, Goodell and Reamy, that the operation kills more than the disease itself for which it is done. Such, then, being the risks of this operation, a halt should be called and greater circumspection and care demanded in the selection of proper cases. To a certain extent this is taking place, and all around us we hear the sounds of discontent, physicians in all parts of the world protesting against

the too frequent and indiscriminate resort to this operation. Witness at home the articles on conservatism by Goodell, Lusk, Polk, Mundé, and others, and abroad by Doléris, Pozzi, and Martin.

The royal road to a medical reputation in these days of rapid everything is the surgeon's knife. Like the soldier, the gynecological surgeon tempts the bubble Fortune, not sword in hand at the cannon's mouth, but knife in hand at the open belly. A brilliant operation often insures a brilliant name quickly won, and to be able to boast of having done an operation one hundred, five hundred, or one thousand times often elicits the plaudits of an admiring audience, where the record of a like number of cases medically treated would hardly draw out a subdued ripple of applause. The result to the patient may be practically nothing; she has submitted to the knife, has recovered from the operation, and that is enough, often, for the complacent surgeon. Perhaps she has died. "Ah, yes!" says the surgeon, "but that was inevitable." I remember, when I was a student of medicine, our old professor of surgery, a truly conscientious man, was in the habit of reporting to the class the results of all his operations, and at times, though fortunately not frequently, his reports ran as follows: "Gentlemen, the operation was perfectly successful, but the patient unfortunately died."

The mere fact that an operation has been done so and so many times, though important, should alone count for little with us as reasoning men. What we want to know is whether it does what its performers claim for it—whether it does really do good. Baker Brown made it his boast that he had removed over a bushel basket of clitorides. What did he accomplish thereby, and who removes this organ now? Yet he was an able and eminent surgeon, who no doubt had many imitators. Not many years ago gynecologists the world over were engaged in dividing the cervix, following the teachings of Sims, where a few years later cervices by the score were being sewed up. How few of the former operation are now done, while where formerly hundreds of lacerated cervices were sewed up but tens are now so treated. Such is oft the transient glory of surgical expedients. As a further index of this inordinate desire for the rapid acquiring of fame and its incident fortune, we note the wild scramble for what may be termed gynecological novelties. Take, for instance, that much-abused and much-suffering organ, the uterus,

and its displacements. For these comparatively innocent conditions, free of danger in themselves to life as they are, the number of operations done is legion, some even carrying risk to life with them. In fact, we may say, no surgery is absolutely free of danger. Thus we have this organ trussed up by fixation to the abdominal walls, suspended by its shortened round ligaments in its various modifications, anchored by union of the cervix to the vagina, wedged in by narrowing of this canal, and even entirely removed for prolapsus. Nor are these facts alone true of gynecology. General surgery and even medicine also have their novelties. For instance, in 1891 Lannelongue published twenty-five cases of linear craniotomy, claiming striking and wonderful results in cases of idiotic children, especially when dependent upon microcephalus, both as regards recovery from the operation and improvement of the mental condition. Yet Jacobi shows that the results are practically *nil* while the death rate is enormous. Thus of thirty-three American cases, fourteen, or 42.4 per cent, died, while of the survivors none were really specially benefited. Truly, surgical fashion is all-powerful, and favorable reports are often followed by a flood of similar operated cases; for, with but two years intervening since the origination of this operation, Jacobi was able to collect and epitomize these thirty-three cases from among the immediate circle of his own professional friends. How many more of the same sort must there be throughout this broad country, the records of many of which may never see the light of day! A death rate of almost fifty per cent, with practically nothing gained in the surviving cases! Truly indeed novelty has its charms. We physicians take too much on faith. A combination of a great name and claimed wonderful results, and there are those who rush in with the hope of being the first to record a similar case or series of such cases.

Up to within a comparatively recent time it has been the rule among celiotomists to simply report the total number of cases operated upon, the percentage of deaths from the operation, to make remarks upon the technique and usually to describe some original modification, and there rest content. Of the patients, beyond the fact that they died or recovered from the immediate effects of the operation, nothing further was usually said. Of what ultimately became of them, whether cured or simply relieved, whether remaining as before or even made worse, we

subsequently heard nothing. Perhaps a case was again referred to as the subject of some secondary operation for some sequel of the original one, perchance again with remarks upon the possible accidents and sequelæ consecutive to the surgeon's knife: but, alas! whether the original disease was benefited and the symptoms dissipated or not, usually silence alone. Now what we want to really know is the ultimate result of the surgical interference, since this, to both the patient and to us, is all-important. The surgery is simply the means to an end, and the end is what we want to know.

Now, ten per cent being conceded to be the general normal death rate from all forms of operation within the abdominal cavity, three per cent being confessedly an abnormally low one, how many of the surviving ninety per cent may be expected to be cured, how many simply relieved, and how many must still go on suffering as before and continuing so to suffer? There are certain immediate sequelæ which do occur at times in spite of the present perfection of technique, such as abdominal hernia, fistulæ, and intestinal obstruction, and, though efforts are making to overcome the possibilities of such perturbations, they still follow even at the hands of the most skilful. However, these accidents, which ultimately will probably be eradicated as their causes become better recognized and improved methods are introduced for their prevention, at present comprise but a small percentage of the unsuccessful cases.

It is an exceedingly difficult task to determine exactly how many cases of tubo-ovarian disease are really cured by operation, the facts at hand being very few and extremely hard to obtain. Williams has placed the number of actual recoveries at thirty per cent, but this must be considered too low an estimate, a careful review of such facts as are available to me showing the rate to be about fifty per cent. For instance, in one hundred and twelve operations Boldt had fifty-eight cures, ten failures, twenty-four where improvement alone was obtained, and eleven who were either not heard from or where insufficient time had elapsed, besides having eight deaths among these cases. Of twenty-six cases kept under observation for a long period of time by the late Dr. C. C. Lee, following removal of the appendages, fifteen were completely or comparatively successful, seven were only partially benefited, while four were complete failures. However, even where cure occurs, recovery is usually

extremely slow to follow. Sometimes patients feel better for some time after the operation, but again relapse to their former condition of suffering on taking up anew their old mode of life. Where ultimate cure does take place months and even years intervene before this is apparent, pain persisting to a less and less degree, menstruation with its accompanying dysmenorrhea continuing for a longer or shorter period in not a few, while nervous symptoms indicative of the impending menopause, prolonged and intensified, are instituted, often remaining and causing much discomfort and annoyance during many weary months. The rule in these cases of final cure is slow advent to the ultimate disappearance of all symptoms, rapid recovery being the exception. Such is the universal opinion of all who have inquired into this question, as, for instance, Doran, Howard A. Kelly, Lee, Goodell, Hegar, and many others.

The deaths, unavoidable accidents, and cures thus constituting together fully sixty per cent of all operated cases, forty in every hundred still remain to be accounted for. And what happens to these is this: They go on suffering in spite of removal of the offending organs, and so continue until time, other means, or perhaps death finally end their troubles. A few, after long years of pain and nervous perturbations, ultimately obtain relief by time alone, some go on unbenefited in spite of everything tried, while a fair number are finally cured by some other measures beyond those of surgery. Why is it that such cases continue to occur despite our modern surgical perfection? The diseased parts being presumably completely removed, we would naturally expect disappearance of all symptoms dependent upon such pathological lesions. The answer to this is twofold: there are deep-seated conditions, more especially, probably, in the pelvic nerves, which the knife cannot remove; and unfortunately experience shows that certain changes consecutive to the operation are bound to occur within the pelvis which up to the present all the art of the surgeon has been unable to prevent. Besides, the removal of the tubes and the ovaries induces perturbations of the nervous system which not infrequently pass beyond the limits of the physiological. In a small minority of the uncured cases coming under my notice, although marked local and constitutional symptoms had persisted, absolutely nothing wrong could be detected within the pelvis after repeated careful examinations. Here the pre-

sumption must be that the original lesions were either not completely eradicated or were beyond the reach of the knife, possibly having their seat within the nerves of the pelvis. However, the large majority of the cases show distinct changes which easily explain the failure to cure, consisting principally of inflammatory conditions consecutive to the surgical traumatism. Thus we have peritonitis with exudative masses or adhesions of the various parts to each other. Such cases are particularly difficult of relief and entail much prolonged suffering. In some other cases it has seemed as if we were dealing with a condition analogous to the so-called irritable stump following an amputation, pressure in such instances over the seat of the stump of the tube eliciting great pain. Sometimes we find simply extreme sensitiveness of the pelvic parts without the presence of any detectable lesion. In a few the trouble seemed to exist within the uterus itself. Of thirty-two instances of salpingo-oöphorectomy coming under my notice, twenty-nine had remained uncured up to the time of presenting themselves, the periods intervening between the operation and the examination varying from two months to seven and a half years, the average being one and a half years; pain persisting to a greater or lesser degree in all but five of these cases. Once only in the remaining patients was this symptom diminished in intensity, nineteen times it was unchanged, while in four it was actually increased. In seventeen instances both ovaries had been removed, yet in ten of these menstruation continued to occur more or less regularly, sometimes accompanied by great dysmenorrhea. Twelve times but one ovary had been removed, and in all menstruation persisted, regularly in seven, irregularly in three, and too frequent in two; and of these, most complained of pain with the flow, two, in fact, speaking of their sufferings at such times as terrible.

Nervous symptoms resembling those accompanying the natural menopause, but intensified and prolonged, were observed in thirteen of the cases of the removal of both ovaries and in four others where but one ovary had been taken out. They were particularly aggravating and the source of much suffering and discomfort.

Painful defecation was noted in five cases, epistaxis in one, dyspareunia in two, while abdominal hernia existed in two others. Numerous other unpleasant symptoms were observed, but the

foregoing constitute the principal ones and give a general idea of the deplorable condition in which these women found themselves in spite of the radical measures of surgery. The verdict of these patients themselves, in the majority of instances, was that they had been unbenefited by the operation, even temporarily, to a sufficient degree to have warranted the risk.

The changes within the pelvis were such as usually follow a peritonitis. The uterus was found bound down to a greater or lesser degree in six cases, while in five others there was distinct shortening of one or the other broad ligament, drawing the uterus over to either side, thus making in all eleven instances of uterine fixation. Besides these, in eight other cases exudation masses, varying greatly in size and differing considerably in degrees of tenderness, were detected, indicating undoubtedly previous peritoneal inflammation with agglutination of pelvic parts. In three instances, unaccompanied by any detectable lesion within the pelvis, there was distinct sensitiveness, the slightest pressure in some being followed by extreme pain. In four cases there was considerable thickening at the vaginal vault, usually behind the uterus, showing a marked degree of tenderness. In the three remaining cases only was there failure to detect any pelvic changes which might account for the symptoms, the uterus and genital parts being in all found extremely atrophic, yet two of these suffered from great pain seated apparently within the pelvis.

From the foregoing it is easily understood why some patients continue to suffer even after removal of their ovaries and tubes. New lesions are instituted which, if anything, are more difficult to remove than those of the original disease. However, these changes, although explaining the large majority of these unenred cases, do not include all, for, as has been noted, there are a few where absolutely nothing abnormal can be detected, and these, in my experience, are the very ones where all remedies seem to fail, and, do what we will, the patients go on suffering to the end.

More tantalizing cases than these very ones of unsuccessful salpingo-oöphorectomy it is scarcely possible to conceive of, and, though many and various may be the measures that will be successively tried, failure is the usual result. To even simply mitigate the sufferings of these women is one of the most difficult tasks imaginable. Any means, therefore, which will assist

in the cure, or even the relief, of some of them, is of sufficient importance to merit its trial. And in electricity we have such an agent. Not that it will always succeed. In a few it will completely cure; in a fair proportion it will simply relieve; while in some it will fail to produce the slightest permanent benefit. Where there are distinct exudation masses to account for the symptoms, not of too long standing, it is almost sure to succeed; and sometimes when there is only thickening cure may follow, although this is not as certain as where distinct masses are found. In those cases where there is only a state of sensitiveness of the pelvic parts, without detectable changes, in a fair percentage it will bring relief; but where absolutely nothing is discoverable within the pelvis by the touch, failure, in my experience, has been the invariable rule. In what may be considered a condition of irritable stump relief has been obtained, but the patient has never become entirely and permanently free of suffering.

Both faradism and galvanism have been resorted to by me in the management of these cases, but generally the former has failed to benefit, even, in fact, sometimes actually intensifying the suffering; whereas, where relief was obtained from the use of this agent, galvanism invariably was the form which gave it most promptly, and, while thus relieving, in several instances actually brought about a permanent cure.

The method of employment consisted in introducing the active pole, a clay ball, within the vagina where the trouble was entirely extrauterine; or, where there were uterine complications, a platinum sound was passed up into the cavity of the uterus itself. The passive pole, either an Apostoli or a felt dispersion electrode, was placed over the lower abdomen, or sometimes over the back, the scar being, when necessary, protected by some non-conducting material—as, for instance, oiled silk or rubber adhesive plaster. The preference was generally given to the positive as the active pole in the beginning, the main object then being the rapid relief of pain. Later on when suffering was no longer intense, and even sometimes from the very commencement of treatment, the negative pole was the one of election. The number of sittings was as frequent as possible at first, two and three a week, but as improvement became evident and relief more and more prolonged they were given less and less often, so that toward the latter end weeks and even months

intervened between the various sittings. In fact, in one case here related three and four months now pass before the patient considers an application necessary.

The strength of the current has varied considerably. Recent cases receive as low as thirty-five to fifty milampères, while in old-standing ones or in those where benefit has failed to follow higher and higher powers have been administered, the increase, however, being generally very gradual, so as to accustom the patient to them, and also with the object of avoiding the infliction of unnecessary pain. In some cases as high as two hundred milampères have been given with benefit after lower powers have failed.

The length of the séance, of course, varies directly with the current strength—two to three minutes with the higher powers, and about seven to eight with the lower. The usual antiseptic precautions are, of course, to be taken, and rest enjoined for an hour or so immediately after each application.

So far twelve such cases have been treated, with the following results: cure was obtained in two, more or less permanent relief in four, transient relief in three others, while in two there was absolute and entire failure to benefit even in the slightest degree. In one other case treatment was abandoned too soon to determine anything. The four cases already quoted are fair examples of what this agent can accomplish in this class of sufferers, two being the instances of positive cure, while in two there was marked relief.

In Case 1 the idea of treatment was the removal of a probably existing pelvic inflammation behind the uterus, causative of the pains of which the patient complained. The nervous symptoms, indicating a slowly impending menopause, were allowed to take care of themselves, the presumption being that with time they would spontaneously disappear, or, if in any way related to the secondary changes within the pelvis, would vanish with the cure of these. Such proved to be the case; the disappearance of the pains, and presumably therefore of the lesions upon which they depended, as indicated also by the absence of all retrouterine tenderness, being accompanied by the total relief from all nervous manifestations. That the ultimate cure was to a considerable extent due to the localized use of electricity is shown by the fact that during six months absolutely no advance toward a cure was made, notwithstanding the administration of various

constitutional and local remedies. Of course it may be claimed that time may have brought about the result; but, granting this, it must be admitted that its advent was undoubtedly hastened by the beneficial effects of galvanism.

The second case derives its principal interest from the fact that an old mass of exudative material had continued unchanged in the pelvis for fully four years, in spite of everything done to bring about its disappearance. The application of galvanism, however, was quickly followed by its diminution and later by its entire absorption, and with it all her symptoms vanished and her general condition rapidly improved. A recurrence of this mass some months later was followed by its prompt dissipation under the renewed action of galvanism. In this case the happy result was entirely dependent upon electricity, since all means previously tried during a series of years had utterly and totally failed to produce the slightest impression upon the existing mass or symptoms of which she complained.

Case 3 has been simply relieved. She continues to suffer, but not by far to the original extent, and then only at long intervals. With the improvement obtained she is so well satisfied that she declines further treatment. Here we were dealing with a double condition. On the operated side, along the uterus, a zone of simple tenderness was found which seemed from its location to point to what I have ventured to call a condition of irritable tubal stump, while on the opposite side the tube was the seat of a chronic interstitial inflammation. When she does suffer now, the pain is invariably over the side from which the ovary was removed, the salpingitis no longer giving rise to symptoms.

The most interest of all attaches to the fourth case. This patient had twice submitted to the knife, both tubes and ovaries had successively been removed, supposedly in their entirety, yet notwithstanding this she continued unbenefited, and a digital examination revealed the existence of a sensitive, movable mass, closely resembling a chronically inflamed ovary—a mass which, when first detected, was located about in the right ovarian region, but which gradually descended in the pelvis into Douglas' pouch, where it finally became firmly attached, having steadily enlarged from the size of a walnut to that of a mandarin orange. Upon this mass electricity has failed to make the slightest impression, so that all that this agent can do for her is to give relief for several months at a time, so that probably, in the

absence of a third operation, which she declines, her doom is to suffer to the end of her days. The real point of interest in this case, over and above the relieving effects of the current, is the explanation for the existing mass. Is it a portion of an ovary which the operator had failed to remove, is it a hematoma, or are we dealing with an instance of that rather rare anatomical aberration, a supernumerary ovary? That such a contingency is possible is made apparent when we remember that Beigel has found in five hundred autopsies of adult women no less than twenty-three instances of this condition. Tait also has pointed out the possibility of such a peculiarity as this explaining in some cases the continuance of menstruation after removal of both ovaries. As regards this case this much can be said: as far as location, feel, shape, mobility, behavior to pressure, continuance of menstruation, and general symptoms are concerned, this mass very closely resembles an ovary, and in the absence of proof to the contrary it must be considered as probably an instance of a chronically inflamed supernumerary ovary.

In conclusion, let me urge the advisability of a resort to electricity, more especially galvanism, in these deplorable cases of operated yet uncured salpingo ovarian disease. Some of them may actually be cured, others simply relieved, while unfortunately some must go unbenefited; but, nevertheless, we will have the satisfaction of knowing, even where we have failed, if we have done no good we have done no harm, and at least have tried to benefit. The measures for the relief of these poor unfortunates being all too few, and even then all too unsatisfactory, the addition of a single one to the list, even though that not infrequently fails, is something to be truly thankful for.

126 EAST 82D STREET.

BRIEF REPORT OF ALL THE ABDOMINAL OPERATIONS DONE
IN MY PRIVATE SANATORIUM UP TO JULY 1ST, 1895.

BY

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WHOLE number of laparatomies, one hundred and thirty-one.
Number of recoveries, one hundred and twenty-two: deaths,

seven; remaining in the hospital on July 1st, 1895, two cases. The deaths occurred in the following order: Nos. 8, 42, 44, 57, 76, 82, 114. No. 8, aged 64, had a large sarcomatous ovary; did so well that she sat up on the fourteenth day, when she was seized with tetanus and died three days later. Then came a series of thirty-four sections without a death.

No. 42 came in with a large ovarian tumor. There was also a reddish sprouting growth at the navel. With present experience she would not have been admitted at all. Hers was not an operable case and was no credit to surgery. She was seen by Drs. Sutton of Pittsburg, Kelly of Baltimore, and Eastman of Indianapolis, during the session of the American Medical Association in Washington in 1891. They all thought she had a chance of recovery. The tumor proved to be malignant and adherent to everything it touched. The difficulties were very great in securing a pedicle and arresting hemorrhage. She died the fourth day.

No. 44 died on the sixth day of septic peritonitis.

No. 57 was a case of abdominal as well as pulmonary tuberculosis. Operation was declined after she was admitted. She was too ill to walk and had to be carried to her room. Consulting physicians decided, however, that she could take ether safely, and I was persuaded, against my judgment, to operate. The hope was that her tuberculous condition would be benefited by opening the abdomen and removing a quantity of free fluid as well as the contents of a tubo-ovarian abscess. This hope proved delusive, as she never rallied and died thirty-six hours after the operation. The succeeding nineteen cases recovered, not exactly "without an untoward symptom," as we so frequently read in the journal reports, but with the usual convalescence of this class of patients.

No. 76 had an ovarian tumor successfully removed three years prior to her second admission into the same room. At the time of the first operation I was strongly tempted to "remove the other ovary," as it was slightly diseased, but the "conservative" idea prevailed and it was left, with the hope that she might subsequently conceive. She remained fairly well for two and a half years, when her health began rapidly to fail. While she generally grew thin, her abdomen grew large. The tumor proved to be cancerous, and she died within the week of her operation.

Case 82 was a uterine cancer which had considerably enlarged

the corpus and which might perhaps have been better removed through the vagina. In a dozen or more of these total extirpations per vaginam (hence not included in the list of laparatomies) the patients nearly all had a return of the disease in the ovaries, tubes, or broad ligament within three years. In this case the effort was made to remove *all* infected tissue. The vagina was made aseptic, the uterus enretted, packed with gauze, and the cervical canal closed with sutures. The vaginal wall was separated from the cervix, the uterine arteries tied, and the vagina tamponed with iodoform gauze. The abdomen was then opened, the ovaries, tubes, and uterus completely removed. This combined method requires too much time. Total extirpation through the abdomen alone or through the vagina alone would be a better operation. This patient died.

No. 114 had a small, universally adherent, intraligamentary cyst. She was in a fairly good condition when she entered the sanatorium and I confidently expected her recovery. She had suffered from pelvic inflammatory troubles on two occasions, however, once confined to bed for several weeks. The surfaces from which the tumor was enucleated bled so profusely that gauze packing had to be employed to arrest it. Patient did well for two days; the abdomen then became distended, and she died on the fourth day after her operation.

The following thirty-two cases all recovered from their operations and left the sanatorium.

Of the one hundred and thirty-one laparatomies, thirty-seven were ovariectomies. Four died; of these three were cancerous and one died of tetanus. Seventeen were supravaginal hysterectomies for uterine fibroma; sixteen recovered, one remaining July 1st, 1895. One was hysterectomy for cancer of the uterus by the combined vaginal and abdominal method above referred to; died. Sixty-two were salpingo-oöphorectomies for a variety of causes, mostly pus or bleeding fibroids; sixty-one recovered, one remaining July 1st, 1895. Four were extrauterine pregnancy; all recovered; one had a fully developed fetus in her abdomen over a year. One cyst of broad ligament; died. One operation was for general tuberculosis; died. One operation was for sarcoma of testicle retained so high up as to require opening the peritoneal cavity; husband of one of the ovarian patients; operation by Dr. John B. Hamilton; recovered. Three were exploratory incisions, all inoperable; all recovered

from their operations. One was for appendicitis; recovered. One operation for incarcerated hernia; appendix adherent and ligated by Dr. J. Ford Thompson; recovered. Two operations were for abdominal pain from bands and adhesions; both recovered.

The sanatorium referred to in this report is in a clean and healthful location; is made thoroughly clean inside from top to bottom, and kept so; has a capacity for only fifteen patients, and averages two-thirds full.

Its operating room is ten by fourteen feet; it has a marble floor, tiles, and Kean cement sides and ceiling, which can all be frequently scrubbed. Furniture: brass operating table, glass-topped or white iron tables for instruments and nurses' supplies. Plenty of hot and cold water near by, but no sewer connections are allowed in the operating room.

In operating the aim has been to do quick, clean, thorough work with as little handling and exposure of the abdominal contents as possible, and according to methods which have proved the most successful in the hands of our best men. The published laparotomy records of the large general hospitals (in our city, at least) do not compare favorably with those of private special hospitals, any more than the laparotomy work of the busy general surgeon compares favorably with that of the special gynecological or abdominal surgeon.

In other words, it is reasonable to suppose, what is actually the fact, that an operator who is free from the contaminating influences of offensive and septic discharges from wounds, surgical or obstetrical, is less liable to infect his laparotomy patient than one engaged in general surgical and obstetrical work.

So ought a small hospital, devoted solely to gynecology and abdominal surgery, to show better results than a large institution conducted partly as a lying-in hospital and partly for the medical and surgical, including the abdominal, diseases of women.

My own abdominal work has been much more successful since resigning all connection with other hospitals. The year of my service in Columbia Hospital for Women and Lying-in Asylum, I did in that hospital twenty-seven laparotomies with seven deaths. My abdominal work while gynecologist for ten years to Providence Hospital had a much less mortality, but the death rate has been much smaller in my own sanatorium, the records of which show, in 1893 and up to July 1st, 1895, sixty abdomi-

nal sections (seventeen of which were hysterectomies for fibroid tumors and one for cancer of the uterus) with only three deaths, and two of those died from cancer operations.

The truth of this statement is freshly illustrated by the fact that one of the surgeons of one of our city hospitals has recently opened a private hospital, where he expects to do better and more successful abdominal work than he can in a large public institution. For the same reason, it is fair to presume, the gynecologists of the Johns Hopkins Hospital in Baltimore and of many other large general hospitals in Philadelphia, New York, Boston, Cincinnati, Chicago, St. Louis, San Francisco, Richmond, Pittsburg, and Atlanta, have established small private sanatoriums for the better and safer accommodation of their gynecological and abdominal patients, where it is again fair to presume their mortality records are equal to, and probably better than, those I have been able to present above.

The annual report of Providence General Hospital, in this city, for 1893 shows nineteen laparatomies with eight deaths, a mortality of 42.10 per cent; report for same hospital for 1894 shows twenty-five laparatomies with nine deaths, a mortality of 36 per cent. The annual report of Columbia Hospital for 1892 shows fifty-seven laparatomies with nine deaths, a mortality of 17.64 per cent; report of same hospital for 1893 shows ninety-three laparatomies with thirteen deaths, a mortality of 13.97 per cent; report of same hospital for 1894 shows one hundred and three laparatomies with seventeen deaths, a mortality of 16.50 per cent. The laparotomy mortality in Garfield Hospital of this city, from the best information obtainable from their reports, is above 20 per cent.

In October, 1891, I published in the *Virginia Medical Monthly* a list of one hundred miscellaneous laparatomies, mostly done in Providence Hospital, with a mortality of 13 per cent. I now take pleasure in reporting a series of one hundred and thirty-one private hospital laparatomies with only seven deaths, showing a mortality reduced to 5.34 per cent.

1728 K STREET.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, January 4th, 1895.

The President, HENRY D. FRY, M.D., in the Chair.

Dr. J. W. BOVÉE presented the following specimens:

A CASE OF EXTIRPATION OF THE UTERUS AND APPENDAGES, FOR FIBROMATA, BY ABDOMINAL SECTION.

Mary J., colored, 27, single, was admitted to Columbia Hospital September 7th, 1894, with the following history: Was never pregnant; suffers with indigestion, pain in back and lower abdomen; dysuria; leucorrhea since January, 1894. Has been ill two years, growing worse, and now pain is constant, but worse by walking; menses regular, last five days, are profuse and very painful.

Examination.—Mitral regurgitation; tenderness in right inguinal region; cervix small; fibroid in anterior wall of the fundus.

November 26th, 1894, I curetted and removed a cyst of the anterior wall of vagina; she did not improve, but became bed-ridden, being easy only when lying on back. December 31st, laparotomy; removal to cervix of uterus, which contained in anterior wall a fibroid with large pedicle and a smaller one in posterior wall. The appendages were also removed with it; they were practically normal.

A CASE OF EXTIRPATION OF THE UTERUS AND ITS APPENDAGES PER VAGINAM BY THE SO-CALLED PRATT METHOD.

Agnes J., colored, aged 32, was admitted to Columbia Hospital December 20th, 1894, from the dispensary. She was a widow; had had four children and six miscarriages. Her last confinement occurred four years previous and was normal. At the age of 20 years she was torn in childbirth, and during the last few years had suffered from "falling of the womb." She complained of severe pain, almost constant, in the right iliac region and the back. Her condition had prevented ordinary work. An examination revealed the uterus and vagina entirely outside the vulva, the perineum and cervix uteri slightly torn, and a small growth in the top of the fundus uteri. The sound passed four and a half inches. January 3d, 1895, I removed the uterus and appendages by the vagina and stitched the broad-ligament stumps to the vagina.

The uterus being extravaginal, I decided to attempt enucleation without ligature or clamp, but had to ligate both uterine arteries and, of course, both ovarian arteries outside the ovaries, as the appendages were not detached from the uterus. The small growth in the fundus proved to be an osteofibroma of the uterus. The cavity occupied by the uterus was packed with gauze, and on account of secondary hemorrhage during the night following it had to be repacked. The hemorrhage was considerable, and the pulse rose to 120 per minute.

DR. JOSEPH TABER JOHNSON.—The specimens are very interesting, and are more valuable than merely literary productions. These cases do not illustrate Pratt's operation. His method avoids hemorrhage by ligating the ovarian arteries and enucleating. The propriety of the removal of the uterus for procidentia is questionable. Emmet and Edebohls say there is no case of procidentia that cannot be cured by plastic operation. If this patient gets well she will be better off without her uterus, probably, though the operation was a dangerous one.

DR. H. L. E. JOHNSON.—It is a broad assertion to say that there is no case of procidentia uteri that cannot be relieved by a plastic operation. Certain cases can be cured by that means, but where degeneration exists it will not succeed. It is best to take the chances of complete removal. The mere holding up of the uterus will do much good in preventing erosion and degeneration. The plastic operation should not supplant the radical one in all cases.

DR. J. W. BOVÉE had lost hope of curing, in cases as bad as the one presented, by plastic means. He regretted that he had not done the ordinary ligation operation, being less dangerous. He had seen numerous and repeated plastic operations that failed to relieve. There are some that cannot be cured without complete closure of the vagina.

DR. GEORGE N. ACKER reported a case of

HEMORRHAGE DURING LABOR.

Mrs. B., white, æt. 35, had her last regular menstrual period in the latter part of September, 1892. Felt quickening about February 20th, 1893, and expected to be confined early in July. She had a slight flow from October 26th to 29th, 1892, and for several months afterward the periods continued, but diminishing in quantity until quickening was observed, when they stopped. This has been the rule with all of her pregnancies, and, as she has little nausea, it has been difficult to predict the date of confinement in her case. She has exophthalmic goitre in a slight degree, and this becomes very pronounced when she is pregnant and almost disappears when this is terminated. She has had five children, the oldest being 15 and the youngest about 3 years. The former labors have been

normal. Had a miscarriage at the fifth month fifteen years ago and one at the fifth week eleven years ago. Has suffered from uterine trouble and was curetted in 1886. This was followed by pelvic peritonitis. At 1:40 p.m., August 5th, 1893, while sitting sewing, she had a severe pain and "felt something give way." This was followed by a sudden gush of blood and water. She had been at lunch ten minutes before this and had walked up two flights of steep stairs. I saw her about twenty minutes afterward and found that the floor and bed were wet with blood and water. The pains were severe, with little intermission. The os was dilated to the size of a silver quarter and the head presented. The os was thick and soft. The pains continued with force, and it was necessary to use chloroform freely in order to keep her quiet. She was nervous and had great dread of the results of the labor. Much blood and water passed away from time to time. I examined her carefully, but could not feel anything which would lead me to suspect an insertion of the placenta near the os. The labor did not make much progress, and it was not until 6 p.m. that the os was dilated to the size of a silver dollar. I was very anxious about her, as the pulse was fast and weak and the pains were very severe but not effective. I could not hear any fetal heart sounds, and there was not any evidence of life in the fetus at that time. During the day the movements of the fetus had been active. At 8:30 p.m. the os commenced to dilate rapidly, and ten minutes after the first stage was over the head was born. There was a slight difficulty with the shoulders. As soon as the body was delivered there were a number of large dark clots and much blood discharged. These were followed by the placenta, which was loose and ragged. The uterus contracted down well. The cord and placenta were normal. The child was well formed and about nine pounds in weight. It was still-born and I could not resuscitate it.

She had severe after-pains for some days, with a freer flow of blood than usual, but made a slow and good recovery. There was no rise of temperature except that due to intermittent fever, from which she suffered for several months. Since then she has had a leucorrhœa, for which I have made intrauterine applications, besides glycerin tampons and hot-water douches. She is now in the third month of pregnancy. At present she enjoys good health and everything appears to be in a normal condition.

The first question to be considered is, What caused the hemorrhage? Was it a so-called accidental hemorrhage (that which occurs from premature detachment of the normally situated placenta), or was it a partial placenta previa? The former, I know, is not a frequent complication of labor, and the hemorrhage, as a rule, is more concealed than in this case. Yet when the child was delivered there were a number of large clots passed, showing that there had been a great flow of blood and

much of it had been retained. Then, she did not have any appearance of blood until labor had commenced. This would be a very rare occurrence in a placenta previa.

The only exciting cause that I can attribute the separation of the placenta to is that the lady walked up two flights of steep stairs after eating lunch.

Dr. Robert Lee, of London, held that one of the most frequent causes of this was due to a shortening of the cord by being twisted about the neck of the child, thus inducing partial detachment of the placenta. Seanzoni also taught this. Bedford attached great importance to habitual and obstinate constipation. The violent straining induced by this condition of the bowels has occasioned detachment of the placenta in some part of its surface and consequent hemorrhage. In my case neither of these causes existed, nor any of the causes given in the text books.

Another point to be considered is whether the life of the child could have been saved by any method of treatment, such as the use of Barnes' bags, tampons, etc. I intended to hasten the delivery during the second stage by the use of forceps, but this stage terminated so quickly that it was not necessary to resort to them.

Dr. H. L. E. JOHNSON.—This is an interesting case of not frequent occurrence. It was not placenta previa, but the accidental hemorrhage due to partial separation of the placenta. This separation might be due to a prediseased uterus or was brought about by some violent exertion. Those cases occurring during labor indicate a diseased condition of the uterus. The treatment depends upon the violence of the symptoms. In a case in his own practice he packed the vagina with long strips of bandage, with a favorable termination. These cases are more liable to septic infection. Is this due to autoinfection, or carelessness of the operator in the haste incident to the case?

Dr. JOSEPH TABER JOHNSON had had a case of hemorrhage due to partial separation of the placenta. The woman was in the eighth month of pregnancy. She sat upon a urinal, which gave way beneath her, causing her to give a violent jump, when she felt something break within her. She complained of great distention. The next day he saw her again, when she had profuse hemorrhage. Dr. S. C. Busey saw her with him, when they effected rapid delivery. The placental edge showed a dark border, indicating the point of separation. The point of Dr. H. L. E. Johnson that sepsis was likely to occur in these cases was due to hungry vessels near by absorbing rapidly.

Dr. H. L. E. JOHNSON did not accept the suggestion that sepsis is due to the vessels absorbing more readily, but it is due to the fact that in the hurry to check the hemorrhage there is carelessness or no attention is paid to asepsis. The plethora are more liable to infection.

THE PRESIDENT (Dr. H. D. Fry).—Dr. Reynolds, of Boston,

has recently written a paper in which he reports two cases. In the treatment he advises the expectant plan.

DR. A. F. A. KING.—While formerly the radical treatment of emptying the uterus without delay was common, of late cases had been reported in which the expectant or waiting method had been attended by good results.

DR. H. L. E. JOHNSON.—Dr. King is wrong in saying that so long as blood was not escaping there was not much danger. Where hemorrhage is concealed the danger is greater. When a pregnant woman is taken with pain, has shock and distention of the uterus, the membranes should be ruptured so that contractions may occur and control the hemorrhage.

DR. GEORGE N. ACKER.—Dr. H. L. E. Johnson is right. Playfair says where hemorrhage is concealed there is more danger. There was no evidence of disease of the placenta in this case.

DR. E. L. TOMPKINS reported a

CASE OF POLIOMYELITIS ANTERIOR.¹

DR. S. S. ADAMS.—The cases usually met with are generally more severe than the case presented. There is little hope of improvement, where degeneration has occurred. Not much benefit is derived from medication.

DR. H. L. E. JOHNSON observed a case of infantile paralysis while a resident in Columbia Hospital. The child died after two weeks. The necropsy showed fracture of the skull.

DR. S. S. ADAMS saw a child with what was supposed to be infantile paralysis affecting the arm. A closer examination disclosed a fractured clavicle.

DR. F. S. NASH.—The disease is not confined to childhood; it sometimes occurs in men. When degeneration has occurred they are not restored.

DR. E. L. TOMPKINS.—The cases are not congenital. They usually occur about the third year. So long as there is response it is wise to continue treatment.

REVIEW.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By leading authorities in Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty volumes. Volume III. Occupation Diseases, Drug Habits, and Poisons. New York: William Wood & Co., 1895.

The opening paper of this volume, on "Alcoholism and Drug

¹ See original article, p. 582.

Habits," by Dr. Norman Kerr, is an instructive and important essay on a subject of vital importance. He discusses first the toxic effects of alcohol, then of narcotics and other drugs whose use may lead to the formation of harmful "habits," and then goes deeply into the subject of narcomania, the disease of inebriety. His arguments and conclusions are quietly and temperately put, but are convincing. The second paper, on "Shock," by Dr. Shrady, the editor of the *Medical Record*, is excellent and is written in its author's well known concise and graceful style. A subject of great personal interest to those of us who from inclination or necessity "go down to the sea in ships" is charmingly handled, under the title "Naupathia," by Dr. Gihon, Medical Director of the United States Navy, who also contributes chapters on "Heat Stroke" and "Frost Bite," in all of which conditions his extended service as a naval officer has given him large experience. "Diseases of Occupation," by Dr. James Hendrie Lloyd, is an able exposition of the pathological conditions resulting from influences peculiar to certain trades and professions. This is a much more extensive subject than might be supposed and is well arranged to avoid repetition and to facilitate reference. The other papers which go to make up the somewhat miscellaneous contents of this volume are: "Mountain Sickness," by Von Liebig; "Osteomalacia," by Councilman; "The More Important Organic Poisons," by Small; and "Certain of the Mineral Poisons," by Stewart.

ITEMS.

AN Amherst man the other day was speaking of the rapid success of young college men, and mentioned as an instance Dr. Ervin A. Tucker, of New York City. Dr. Tucker was graduated from Amherst in 1885 and received his A.M. degree in 1888. The following year he took the Harsden prize at the College of Physicians and Surgeons, and retained his connection there, becoming instructor in practical obstetrics in 1890, and later tutor in obstetrics and gynecology. For five years he has been resident physician of the Sloane Maternity Hospital (and was recently appointed assistant visiting physician of this hospital), and now he has begun private practice with unusually bright prospects. This is a record that should be of interest to medical students.—*American University Magazine*.

At a recent meeting of the trustees of Jefferson Medical College, Philadelphia, the honorary degree of LL.D. was conferred on Dr. John Collins Warren, Professor of Surgery in Harvard University.

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ORIGINAL COMMUNICATIONS.

THE INDICATIONS FOR OPERATION IN PUERPERAL SEPSIS.¹

BY

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THE efficiency of aseptic methods in preventing infection during the puerperium has been demonstrated by the recorded results of maternity hospitals. Notwithstanding the general acceptance of this fact, puerperal sepsis is very common at the present time. The mortality continues great, and in a large proportion of the cases of chronic pelvic inflammation requiring operative treatment the disease has originated in an infection during the puerperium. When we consider how incomplete the statistics of this subject are in the towns and country districts, as well as how unreliable are the same in our large cities, we can form some idea of the heavy mortality of puerperal sepsis. Thousands of women die annually of this disease.

Since operative surgery a few years since disclosed the various lesions of pelvic disease, it has been known that pregnancy and the puerperal state may be complicated by pre-existing inflammatory

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

diseases of the uterine appendages, tumors, and septic accumulations inside the pelvis. Chronic and circumscribed disease of this character may be converted into acute and diffuse inflammatory conditions by the trauma of labor. Puerperal sepsis may in this way be the result of pre-existing disease. This class of cases must necessarily be small, since women thus diseased are as a rule sterile. That such cases necessarily come within the scope of operative treatment will be generally conceded. The indications and guides for operative interference in this class of cases will receive consideration in the course of this paper.

The bacteriology of puerperal infection has received most careful study by Bumm and other observers, and all who have studied the clinical manifestations of puerperal sepsis have remarked upon the diverse character of the disease in a given group of cases. The septic process may be limited to the uterine cavity, broad ligaments, and adjacent peritoneum, with moderate systemic infection; or the general system may be profoundly infected, with comparatively insignificant local manifestations. According to Bumm the organisms which are the active agents in the infective process may be shut off by an underlying area of granulations after becoming established in the uterine mucosa; or this barrier may be wanting and the germs penetrate directly the lymph spaces and diffuse themselves rapidly throughout the lymphatic system. In this way, both by the character and intensity of the infection and the resistance of the tissues, it is determined in a given case whether general infection will predominate and local manifestations be secondary, or the opposite. After the septic process becomes established along the utero-vaginal canal, it may extend to the peritoneum either by the continuity of surface furnished by the mucous membrane, or septic germs may traverse the veins and lymphatics so richly distributed to the invaded tissues.

Septic endometritis presents diverse lesions and products corresponding with the clinical varieties of puerperal sepsis. A profound degree of systemic infection may exist without extensive gross lesions at the site of infection. Again, putrefactive changes may obtain within the uterine cavity with the development of toxins, which being absorbed beget that form of systemic infection known as *septicemia*. For practical purposes cases of puerperal sepsis should be considered in two general divisions: (1) those cases wherein systemic infection is marked and pre-

dominant, with comparatively insignificant local manifestations; and (2) those wherein the local inflammatory lesions are conspicuous and general systemic infection less marked and secondary.

In the first class of cases the septic focus within the uterus, by rapid absorption through lymphatics and veins, overwhelms the system with infective products. The lymphatic system is very active in this process, and so rapid is the diffusion of septic material that the entire system may become infected in a few hours. The inflammatory element about the uterus and adnexa is not appreciable in many instances. The granulating area previously described is said to be absent in these cases. The discharge from the uterus is usually slight and is seldom putrid. The abdomen is soft, and vaginal examination will elicit no signs of inflammatory deposits about the uterus or its adnexa. In several cases observed by the writer lymphangitis was marked in both lower and upper extremities, so that the slightest movement would produce extreme pain. The use of curette and intrauterine douche in these cases avails nothing. The entire system is quickly saturated with septic products, which cannot be eliminated or counteracted by any operative procedure. These cases have always impressed my mind as analogous to other systemic infections, such as syphilitic, wherein it avails nothing to excise the point of infection after the organisms have been diffused throughout the system. When the diagnosis is made the mischief has already been done.

In the second division of cases, as indicated, localization is marked and a variety of lesions may obtain. This large class of cases affords wide scope for local treatment, and I would lay down this general principle as the basis for deciding the question of operative interference—viz., that lesions demonstrable to the skilled touch, and local signs of known value, together with general symptoms of recognized significance, should invariably form the basis of such decisive action. In a word, the recognized principles of diagnosis ordinarily applied to inflammatory diseases of the uterus, its adnexa, and the pelvic peritoneum should, with all due modification, be applied to puerperal sepsis. No operation should be projected upon the indefinite data of pulse and temperature or time requirements.

In all cases of puerperal sepsis the most careful examination of the pelvic organs should be made. Should such examination demonstrate the presence of pre-existing disease, as already

indicated in this paper, the indications for operation should be carefully weighed in the balance of mature surgical judgment and experience. A pre-existing pus tube, a uterine fibroid or ovarian dermoid, converted by the trauma of labor into activity as an infecting source, should be treated by prompt resort to abdominal section.

Septic endometritis, with or without putrefactive changes in retained clots and débris, should be removed by cleansing, anti-sepsis, and drainage. Thorough intranterine irrigation and drainage in appropriate cases may quickly arrest the septic process. I am convinced that curettage is much too extensively used in these cases wherein the septic focus is limited to the uterine cavity. The granulating area described by Bumm may be broken through and infection promoted by curettage; also, closed sinuses and veins at the placental site may be reopened and septic material diffused by this operation. I have seen repeated application of the curette in cases of puerperal sepsis signalized by repeated chills and rising pulse and temperature, marking the invasion of new areas of infection. I am convinced that the indiscriminate use of the curette in cases of puerperal sepsis is most harmful, and that in this way Nature's barriers to increasing infection are torn away. Thorough irrigation and drainage of the uterine cavity will meet all the requirements of the local treatment of septic endometritis. Plugging up the uterine cavity after the method known as gauze packing is positively contraindicated by the simplest surgical principles. Drainage should be facilitated and not obstructed.

Purulent salpingitis, ovarian abscess, and suppurative peritonitis, by progressive steps, may obtain very rapidly in puerperal sepsis, the process extending both by continuity of surface and by vascular routes. The associated peritonitis may be diffuse or circumscribed, and its office as a conservator must be recognized. Here the most deliberate judgment must be exercised in determining the time for resorting to proper treatment by abdominal section. The time for operative interference and the extent to which the operative procedure is to be carried in these cases require the exercise of sound judgment in every case. The following case occurred in my practice last year and illustrates the most severe and extensive lesions of the form of puerperal sepsis under consideration.

Age of patient, 21 years. Confined July 26th, 1894, and de-

veloped peritonitis. After an acute illness of several weeks the inflammatory process seemed to abate and her condition was hopeful. During the latter part of August her condition was complicated by abscess of the breast, which required incision and gave much distress, at the same time adding to the exhaustion of an already enfeebled condition. I saw the patient in the latter part of September in consultation with the family physician, Dr. Coleman Rogers. For several weeks preceding the condition was one of seeming improvement, with recurrent attacks of violent pain necessitating repeated doses of morphine, accompanied with fever and sweats. These exacerbations marked the invasion of additional areas of peritoneum by the inflammatory process. Dr. Rogers had utilized purgatives, as well as all other non-surgical resources, in the treatment, and requested a consultation with a view to operative interference. An examination disclosed the most extreme and advanced lesions of puerperal pelvic inflammation. The uterus was bound down upon the floor of the pelvis, the fundus in Douglas' pouch, and the rectum almost occluded by its pressure. All the pelvic viscera were fixed, being bound by extensive deposits of organized exudate. There was an indistinct sense of fluctuation in the lateral pelvic spaces when the bimanual touch was applied. The patient was pale, feeble, and emaciated, racked with daily exacerbations of pain and constant fever.

On October 6th, 1894, during the eleventh week of illness, the patient was removed to the infirmary, and on the following morning abdominal section was made. Ether was very cautiously given and the operation performed as quickly as thorough and careful work would permit. On opening the abdomen (suprapubic) the omentum was found agglutinated to the intestines, roofing in the pelvic viscera. Releasing this and working a track of cleavage with two fingers through the coils of intestines, the pus freely poured out of the incision. In separating the adhesions at the floor of the pelvis and enucleating the disintegrated tubes and ovaries (applying only gentle force cautiously), my index finger penetrated the uterus. Recognizing this, I forcibly released that organ (observing the utmost care not to open the rectum, to which it was adherent) and brought it up with the suppurating appendages. The body of the uterus was friable, breaking down under slight force; the appendages were mere abscess sacs. Having separated

adhesions so as to release the intestines, I did a complete hysterectomy, removing uterus and appendages. The peritoneum was thoroughly douched with several gallons of warm water, a drainage tube placed, and the incision rapidly closed. The operation was completed in thirty-two minutes. The anesthetist had already administered stimulants hypodermatically. The patient was put to bed without any pulse that we could detect in the wrist, though the heart was acting with great rapidity. The usual stimulants subcutaneously, with dry heat to the surface and extremities, were persistently applied, and the patient gradually rallied. The pulse was rapid and small for three days, then gradually improved. The drainage tube was removed on third day, and healing was prompt and complete. The patient rapidly gained strength and flesh, and is now a perfect picture of health.

The most difficult form of puerperal sepsis in relation to operative interference, as well as one of the most serious conditions resulting from sepsis, is that of diffuse septic parenchymatous metritis and purulent metritis. I have seen two cases where operation in the fourth and sixth weeks respectively after labor demonstrated this condition. In both cases the presence of pus in the pelvis being evident, I believed it to be localized about the uterine appendages. When the uterus was exposed by abdominal section pus formation in the uterine walls was apparent to the eye and multiple abscess cavities existed throughout the organs. Recovery followed hysterectomy in both these cases. Septic metritis may be marked by a soft and boggy uterus, as illustrated in the case reported in detail, or multiple pyemic abscesses may riddle the substance of the organ, as just described. The only treatment for these cases is hysterectomy, the selection of the vaginal or suprapubic route being determined by the complications of individual cases or the preference of the operator. While cases of purulent metritis are comparatively rare, I am confident that they are more common than generally believed, and, as observation increases and diagnosis improves, this otherwise fatal form of puerperal sepsis will be more frequently disclosed and cured by hysterectomy.

In conclusion I would allude to the class of puerperal cases wherein the local symptoms are those of diffuse peritonitis without localization of lesions, but where the uterus is presumably the focus of infection. This class of cases has recently

been discussed extensively in relation to treatment by hysterectomy. Empirical operations in surgery are likely to prove more disastrous than similar methods of treatment in medicine. The gravity of such cases may often justify exploration and drainage, but the more extensive operation of hysterectomy will almost invariably prove disastrous.

231 WEST CHESTNUT STREET.

INTERMEDIATE TREATMENT OF PUERPERAL SEPSIS.¹

BY

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IN consequence of the views entertained by Semmelweiss, that puerperal sepsis is due to infection of the birth canal and that the causation is largely from external influences or the introduction of poisonous material, carried to the parts through the uncleanness of doctors, nurses, instruments, or dressings; and the investigations of Lister and Pasteur of antiseptics as germicides, the treatment by vaginal irrigation naturally resulted, which has so faithfully, conscientiously, and profitably been followed since the advancement of this theory.

Observation subsequently confirmed the views of Semmelweiss, but has not positively proven up to this time the true nature of the infection, its method of action and degrees of virulence differing in different cases; it has failed also to introduce a specific method of treatment. The teachings of Baker have entirely passed away, and yet we may learn much regarding the nature of the affection by closely studying his observations. While we do not have the blood changes as a cause of the affection, we do have changes in the blood differing with the causation.

The toxemia or intoxication following putrefaction or chemical changes of the retained products of conception, while producing fever, malaise, and stupor, differs from the systemic symptoms due to heterogenetic influences, or the true puerperal

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

sepsis. I say true puerperal sepsis, in contradistinction to the many conditions producing allied symptoms and classed in this order in modern text books and recent literature, as follows: suppuration resulting from traumatism of a pelvic tumor or structure, or a tumor of the abdomen in continuity or contiguity with the parturient womb; abscess of the ovary, or suppurating Fallopian tubes. It is also possible for women in childbed to have the various specific fevers. These, too, I would in no way associate with puerperal fever, but would classify them as fevers complicating this process or period, and this fever as depending upon the micro-organisms.

Then puerperal fever and puerperal sepsis, which are used as synonymous terms, would demand but one causation, and, having determined the cause, the treatment would follow applicable to all cases. That it is difficult to determine the different conditions giving rise to fever is an acknowledged fact, but, as rational treatment can only follow an accurate diagnosis, it appeals to our reason with greater force.

To irrigate the vagina with antiseptics for a suppurating cyst of the abdomen, a pus tube, or local peritonitis, certainly would be attended by disastrous results, and in too many cases is only appreciated at the autopsy, when "it was, as suspected, beyond the reach of medical or surgical interference." A statement of this kind ought not to ease the conscience of the attending physician, if it is balm to the ignorance of sorrowing friends.

True puerperal fever is the result of outside influences, micro-organisms, pyogenic microbes, carried to the patient either on the hands of the accoucheur or nurse, on instruments, dressings, irrigation, or having a natural habitat in some portion of the birth canal, if this be possible. The germs or bacteria capable of producing infection are: *streptococcus pyogenes*, which is Fehleisen's *diplococcus of erysipelas*; *staphylococcus pyogenes aureus*, found in ordinary pus; *staphylococcus pyogenes albus*; *staphylococcus pyogenes citreus*; and possibly *baecillus pyocyaneus* and other bacilli.

These are the accepted views of the profession. Based upon this conclusion, the treatment advocated has been by antiseptic irrigation. In our maternities, by this method the mortality has fallen to a very small percentage, while in private practice, where the larger percentage of women are confined, the mortality has not been materially affected. In the maternities these

results have followed in consequence of the cleanliness which has been observed, while sepsis is not so thoroughly understood by the general practitioner, and the homes of the unfortunate ones are not adapted for aseptic surgical midwifery.

Antiseptics, while capable of doing good, may result in harm when applied to this field of surgery. Bichloride of mercury, the strongest germicide, even when used in weak solutions, forms albuminates, arresting its germicidal properties, and destroys the epithelium of the vagina by its irritant action. It creates a raw field throughout the entire birth canal for the better absorption of the poisonous excretory products of germ action, if not producing death by its entering the system when used in concentrated solutions or frequent irrigations.

The germicidal action of the secretions of the puerperal vagina, as claimed by Krönig and others, if proven, certainly is opposed to irrigation and to antiseptics.

Bacteriology and the microscope have put us in possession of our present knowledge of the causation of this most dreaded disease, and if we succeed in contending successfully with it we shall have to base our treatment upon this knowledge. It is from this standpoint I have seen fit to introduce to this distinguished body of specialists my views under the title of "Intermediate Treatment of Puerperal Sepsis"—intermediate as a consequence of the long swing of the pendulum from antiseptic irrigation to the more recent advocated methods of arresting or dealing with the parturient womb when infection is confined to it. I refer to hysterectomy. It is with pleasure I reiterate the statement of our distinguished Fellow, Dr. Marcy, in his address before the Mississippi Valley Association: "Bacteriology has made possible a scientific basis for the formulation of the principles of wound treatment which has revolutionized modern surgery." To no branch of surgery does this apply more forcibly than to injuries of the parturient canal, for here the conditions are most favorable for germ development—warmth, moisture, and suitable culture media being present.

In consequence of the degeneration of the human race and the teaching of the obstetrical art, women are placed in the recumbent posture during confinement and during their convalescence. Owing to the anatomy of the birth canal, only an imperfect drainage can be secured in this posture. The lochia from the womb form a pool in the vault of the vagina, and the

cervical neck is constantly bathed by resting in the accumulation. So here we have the broth or suitable culture medium, and the warmth of the body to develop the micro-organisms of puerperal sepsis—an incubator the envy of our most modern bacteriologists. The amount of lochia retained as a result of the most dependent position of the vagina being the vault may vary from a slight amount to several ounces. Let us deprive the field of infection of some of its elements of germ development, and Nature will restore the abraded parts to health.

While some authors give the seat of most frequent affection as the placental site, it seems more than probable that the infection must start in the vagina, the most natural place for depositing the germs by interference, and may then extend upward to the uterine cavity.

If the vagina or cervix is lacerated and infection is present, clinical observation has taught us that these parts are covered by diphtheroid deposits, local evidence of germ poisoning. As the discharges must accumulate in the vaginal cup, if micro-organisms are carried to the birth tract the cervix would be the most probable seat of infection.

The lochia (a natural result of childbirth) and the warmth of the body, two elements of germination, are present; but it is within our power to so limit the field of culture that the reparative forces of the infected patient will be stronger than the infection. If the parts can be kept dry, development of micro-organisms will be arrested and sepsis can no longer take place. This can be done by packing the birth canal with absorbents, and changing as soon as indications of infection are again present, as indicated by rise of temperature and increase in pulse beat. To obtain a dry field, or arrest the development of the micro-organisms where infection is present or suspected, I would proceed as follows:

The usual symptoms of puerperal sepsis being present (high temperature, rapid pulse, increased respiration, anxious facial expression, arrest of lochia or otherwise), after securing a culture for development, all aseptic precautions being observed, the vulva and vagina should be cleansed as for vaginal hysterectomy (avoiding the use of the brush) by means of gauze pad, and a bland irrigating fluid to wash away the already infected mucous secretions. An examination of the uterine cavity for retained products of conception should be made by means of

finger and curette, the latter used when indicated, and the cavity then thoroughly wiped out by pledgets of absorbent cotton saturated with sterilized water or antiseptic solutions. After thoroughly cleansing, the parts should be wiped as dry as possible with sterilized cotton carried into the uterus by means of dressing forceps, the vagina dried and smeared over with sterilized vaseline. With the patient on her back, legs flexed, the perineum should be depressed by speculum. The anterior wall of vagina is elevated, the cervix caught in the grip of a flat-toothed forceps sufficiently wide not to tear the parts, and securely held until the cavity of the uterus is filled with some absorbent material—gauze, lamp wick, or discs of cotton. The uterus is then released and permitted to rise in the abdomen. The vagina is firmly packed with discs of sterilized cotton arranged concentrically about the cervix, exercising all the thoroughness possible, until the cul-de-sac is filled, and continued until the ostium is reached. The temperature will subside immediately, unless it may be following the first packing, when, in consequence of the systemic condition and the length of time employed to carry out the technique thoroughly, slight shock may be induced.

Owing to the presence of moisture and the impossibility of making every part absolutely dry, as in lacerations of the cervix, some symptoms will remain, but they may be compared to a calm after a storm.

As soon as the pulse beat increases and the temperature begins to rise, with symptoms of restlessness, and the facial expression becomes anxious, the packing should be removed and renewed, whether it be three hours, six, or twelve, as the dressings are saturated and infection again is taking place.

As moisture is always present, treatment will have to be persevered in until the nutrition of the parts is restored and the abrasions or lacerations are healed, or sufficient reparation has taken place to no longer admit of infection. It will not be possible to rid the canal of all pyogenic organisms until the tract is again covered by healthy membrane; treatment is to be continued until abatement of all symptoms.

In my experience the treatment has not been painful to the patient nor required an anesthetic. I would advise that one be administered at the time of first dressing, if the parts cannot be thoroughly cleansed and packed otherwise. The same attention

should be given to the drawing of urine and condition of bowels as in any other pelvic affection.

I append one history, which I hope will be as forcible as many and take up much less time of the Association.

Mrs. H., aged 30, primipara, was confined February 25th; labor normal, lasting seven hours; temperature and pulse normal. Patient slept well first night. Health good previous to confinement.

February 26th: 7 A.M., temperature 99.4°; pulse increased in rapidity, number not given; doctor ordered small doses of aconite. 7 P.M., temperature 100°.

February 27th: 2 A.M., temperature 100.4°; patient awakened with slight chill and complaining of pain across lower part of the abdomen. 8:30 A.M., temperature 103.8°; aconite was continued by physician in attendance, and phenacetin, five grains, ordered every three hours for five doses, commencing at 7:30 A.M. Epsom salts were given in one-ounce doses five times during the day. At 10:30 P.M. bowels moved, large amount of flatus passing. Vaginal discharge arrested entirely between 12 and 2. Intrauterine douche ordered at 1:30 P.M.; several shreds and small clots passed.

At 7:30 P.M. I was called in consultation. Temperature of patient 104°, pulse 145, respiration 30; face flushed and expression anxious. Patient was prepared by the method advocated above, asepsis being observed as thoroughly as possible. On depressing the perineum a laceration was found two inches long on the vaginal mucous membrane, running obliquely and covered with a diphtheroid deposit. On exposing the cervix it was found to be deeply lacerated bilaterally and through the anterior lip. This also was covered with diphtheroid deposit. A culture was obtained and submitted to the bacteriologist.

After cleansing the birth canal and curetting the uterus the whole tract was thoroughly packed with sterilized gauze. Patient being in an exhausted condition, slight shock followed. Strychnia was ordered given, with tonic doses of quinine.

February 28th: 4:30 A.M., temperature 101°, pulse 106; doctor in attendance removed the dressings in the morning and repacked. Temperature rose again in the afternoon to 103° (pulse did not exceed 108). Rise of temperature was probably due to inability to pack as thoroughly as when more assistance was at hand. At 7 P.M. I was again called. While the patient

was much more comfortable than on the previous day, the dressings were changed, exercising all the care possible, and each time packing as thoroughly as at first.

Temperature the following morning, March 1st, 99° , pulse 90; evening temperature 99.4° , pulse 78. Packing removed and re-applied at 8 A.M. and 7 P.M. The breast filled with milk; patient sleeping well at night without anodyne. Nourishment taken freely.

March 2d: Temperature again rises to 102° , pulse 102, in the morning. On removing dressings I found them thoroughly saturated. Temperature fell to 101° after repacking and rose to 103° in the afternoon. Dressings changed at 7 P.M., temperature falling to 101° , pulse 96.

March 3d: 6 A.M., temperature 99° , pulse 84. Dressing changed at 8:30 A.M. and 7 P.M.; temperature 100° , pulse 92.

March 4th: 6 A.M., temperature 99.1° , pulse 84; dressing changed at 7 A.M., only one dressing being used; temperature 101° at 8 P.M., pulse 100.

March 5th: At 7 A.M. temperature 98.2° , pulse 80. At 2 P.M. profuse watery discharge; temperature rose to 103.8° , pulse 120. The patient living in a neighboring village, I was informed by telephone of her condition. The dressings were ordered removed and the parts irrigated. Temperature dropped to 102° , pulse 100. At 7:30 P.M. I again packed. Temperature at midnight 100.2° , pulse 90.

March 6th: 6 A.M., temperature 98.2° , pulse 75; dressing changed. At 7 P.M., temperature 99.8° , pulse 84; dressing changed at that hour.

March 7th: Morning temperature 98.5° , pulse 78. Dressing changed 7:30 P.M.; temperature 100° , pulse 84; slight discharge.

March 8th: 11 A.M., temperature 90.2° , pulse 76; dressing changed at 5 P.M. by attending physician; temperature 99.5° , pulse 75.

March 9th: 8:30 A.M., temperature 98.2° , pulse 76; dressing changed by attending physician. At 7:20 P.M. I again changed dressings, but did not pack the uterus; temperature 98.3° . The parts presented a healthy appearance.

March 10th: Dressings were discontinued and the tract irrigated with sterilized water to insure cleanness. Temperature remained normal after this date.

The patient was advised to call at my office a few months after, to make appointment for the repair of the badly lacerated cervix. The examination showed no trace of laceration having been present. Involution had taken place to correspond with the time elapsed, and the patient expressed herself as being perfectly well. Report of bacteriologist showed pure streptococcus culture.

By the method of treatment advocated the results have been attained by shutting off the field of infection or limiting it, and reducing the micro-organisms in number by removing their culture media. This treatment might be attended with difficulties in the hands of the general practitioner unaccustomed to gynecological technique. I believe it would be difficult for them to pack the parts with sufficient care and thoroughness to prevent infection from spreading, until trained to do so. They would find it still more difficult to do a hysterectomy.

As a result of thus reasoning I have devised a false vagina or vaginal drainage tube to reduce the infection to a still more limited field and render the subsequent care less difficult. The preparatory treatment is to be the same as for the absorbent dressings, thoroughly cleansing the vagina and uterine cavity, the walls of the vagina to be smeared with vaseline, and a cup with handle attachment placed over the cervix so that the discharges from the uterus cannot drain into the surgically prepared vagina during the introduction of the drainage tube.

To facilitate the introduction of the tube and the removal of the cervical cup I have had it made in sections. The lower or posterior part is made to conform to the perineum, posterior vaginal wall, vault of vagina, and lateral walls, and is introduced first. The cervix is carried upward and forward by means of the cup until the bowl of the tube has passed into the cul-de-sac, when the cup is removed and the cervix falls into the tube.

The upper or anterior portion is made to slide in grooves on the upper part of the posterior portion, and is readily adjusted by elevating the anterior vaginal wall. When in position it fits about the cervix anteriorly and keeps the vaginal wall from prolapsing. It is hollowed out on the upper surface to prevent injury to the urethra. A canal is thus made to conform to the vagina, through which the uterus can be packed readily, if required, by means of curved dressing forceps, and the cervix can be kept dry by applying beneath and around it sterilized

cotton. This can be done by the nurse in attendance as often as required, and with the same facility that the doctor would apply a pledget beneath the cervix through the lumen of the speculum.

It is my belief that after thoroughly cleansing the cavity of the uterus, owing to its position to facilitate drainage, it would not require packing, if the lochia were taken up when discharged and moisture not permitted to gather about the cervix, arresting infection at this point. It will require experience to prove this belief.

In conclusion:

1. Suspected infection of the birth canal should be confirmed, when possible, by a bacteriological examination of vaginal secretions, and every means of differentiating from other affections be resorted to, that they may be treated rationally either by medicine or surgery.

2. Irrigation and antiseptics destroy the nutrition of the parts when continued, and, furnishing increased moisture, improve the field for the development of micro-organisms, aside from the danger of death resulting from the antiseptic used.

3. That the birth canal can be kept comparatively dry by absorbent dressing, removing the culture media and arresting the development of germs and infection until the abraded parts have healed.

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MANUAL INTERFERENCE TO CORRECT CERTAIN UNDESIRABLE PRESENTATIONS.¹

BY

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THE introduction of anesthetics into general surgery, followed by that of asepsis, completely revolutionized the art and science of surgery. Obstetrics, so far at least as operative interference is concerned, clearly belongs to the surgical side of professional work, but it seems to me that obstetrical science has failed to take as full advantage of anesthesia and asepsis as has general surgery. Obstetrical cutting operations are unquestionably as nearly perfect as any other surgical procedures, but intrauterine manipulations are not, I think, resorted to as frequently and as boldly as they should be.

In 1873 the late John S. Parry, whose untimely death scientific obstetricians still mourn, read a paper before the Obstetrical Society of Philadelphia on "The Use of the Hand to correct Unfavorable Presentations and Positions of the Head during Labor." This was a most scholarly and instructive paper, but it seems to have made little impression upon obstetrical art. If we look through the standard works of the day we find little or no reference to this method of treating occipito-posterior and mento-posterior positions.

Ramsbotham makes no mention of thus correcting occipito-posterior positions, and says of mento-posterior positions: "We cannot cause the head to turn, so as to approximate the chin to the chest, by pressure applied by the finger, nor can we, indeed, succeed in producing the same alteration by the introduction of the hand over the vertex."

Playfair makes no mention of this treatment of occipito-posterior positions, but says in regard to mento-posterior positions: "The older accoucheurs recommended either podalic version or the attempt to convert the case into a vertex presentation by

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

inserting the hand and bringing down the occiput. The latter plan was recommended by Baudelocque and is even yet followed by some accoucheurs. Thus Dr. Hodge advises it in all cases in which face presentation is detected at the brim; but although it might not have been attended with evil consequences in his experienced hands, it is certainly altogether unnecessary, and would infallibly lead to most serious results if generally adopted. It may, however, be allowable in certain cases in which the face remains above the brim and refuses to descend into the pelvic cavity. Even then it is questionable whether podalic version should not be preferred, as being easier of performance, giving, when once effected, a much more complete control over delivery, and being less painful to the mother."

Cazeaux and Tarnier state that "the head, placed in the right posterior occipito-iliac position, may, when once down in the excavation, depart from the chest, and the vertex presentation be thus spontaneously converted into one of the face, at the inferior strait; we witnessed a case of this kind at the Clinique in 1838." But these authors seem to have drawn no particular inference from their observation of this effect. In speaking of mento-posterior positions these authors describe the manipulations necessary to convert this presentation into a vertex-anterior position, but say that "this manœuvre will rarely prove successful." Nevertheless they recommend its attempt, with the hand if the face be above the superior strait, or with the forceps if the head be in the pelvis, before resorting to craniotomy.

In the "American System of Obstetrics" we are told that "should a *prudent* application of the forceps fail (in occipito-posterior positions)—and it constantly will fail—then the forceps must be abandoned," and "the next procedure is embryotomy." And in the same work, in speaking of mento-posterior positions, the author says "he can never indorse a treatment recently proposed which consists in placing the woman under complete anesthesia and then forcibly flexing the head, converting the impossible mento-posterior position of the face into the natural occipito-anterior position of the vertex."

Leishman does not mention manual reduction of mento-posterior positions, but advises that when the chin cannot be rotated forward the perforator should be used. The editor, however, Dr. Parry, protests against this conclusion and refers to his own

paper on this subject. This author also mentions the occurrence of extension in occipito-posterior positions as taking place by the efforts of Nature, but nowhere do I find that he advises an attempt to secure this by manual interference.

Barnes makes no mention of manual interference in occipito-posterior positions to secure extension. With regard to mento-posterior face presentations he says that this procedure "is violent; difficult, when not impossible, to carry out; likely to excite dangerous contractions of the uterus; extremely likely to favor the descent of the cord; and, above all, it is superfluous. . . . We conclude, then, that it is wiser not to attempt the restitution to a cranial position."

Parvin, in discussing face presentations, refers to Parry's case, but says such success when labor is thus far advanced must be altogether exceptional; and in speaking of occipito-posterior positions he mentions the occasional occurrence, if the fetal head be small, of cases of extension in the pelvis and the conversion of the occipito-posterior into mento-anterior positions, but he draws no conclusion therefrom.

Landis, in his work on "How to Use the Forceps," makes no mention of this form of interference.

Reynolds, in his "Practical Midwifery," does not mention this form of interference in occipito-posterior positions. In the treatment of chin-posterior positions, if high, he recommends an attempt at conversion into an anterior occiput by manual flexion, but no mention is made of this form of interference if the position be low.

Grandin and Jarman, in their work on "Obstetrical Surgery," make mention of no form of manual interference in cases of face presentation with the chin turned posteriorly, except an attempt to rotate the chin anteriorly, and, when this fails, recommend that craniotomy should be done or, in favorable cases, symphyseotomy. In occipito-posterior positions they mention the conversion into a face presentation, but recommend instead rotation of the fetus on its axis until the occiput is anterior.

It seems to me that the objections to manipulative interference, though voiced by the above-quoted authorities, are very largely traditional in character and have come down from a time when anesthesia was unknown and when the profession was familiar with the results, though unacquainted with their cause, of the introduction of the non aseptic hand into the uterine

cavity. Certainly, Playfair did not have complete anesthesia in mind when he preferred podalic version as "being less painful to the mother," nor could Barnes have had complete anesthesia in view when he characterized this form of interference as "violent" and "likely to excite dangerous contractions of the uterus." We now know that the introduction of the aseptic hand through the sterilized passages is entirely devoid of danger so far as septic infection is concerned.

Obstetricians who frequently resort to the use of chloroform carried to the surgical degree also know how completely relaxed become the abdominal muscles and the uterine walls. I think it is an invariable rule that when chloroform is given in the midst of strong uterine contractions, these contractions cease for a period varying from five or ten minutes to a half-hour or more. Cessation of the administration sometimes becomes necessary in order to allow these contractions to return. Intrauterine manipulations should always be made, therefore, during these few minutes when the uterus, surprised as it were by the anesthetic, has ceased to contract, and it is at this period that the entire uterine mass may be lifted above the pelvic brim and the necessary manipulations of the fetus accomplished. In the language of Parry: "When the woman is entirely relaxed by the anesthetic it is very surprising what can be done by forcibly pushing the head upward. Not only does the child ascend, but if the lower portions of the uterus have been carried with the head into the cavity of the pelvis it may be lifted with its contents above the pelvic brim, when the latter becomes movable and easily manipulated. Both in the pregnant and unimpregnated woman the degree of stretching and movement of which the generative organs are capable when the patient is completely anesthetized appears very remarkable to one who has never employed this important agent in such cases." Parry's remarks, which were based on the use of ether, are even more true when chloroform is the anesthetic used, as chloroform produces greater muscular relaxation than ether.

In Parry's paper he urged the employment of the hand to facilitate delivery in two conditions: first, to transform occipito-posterior into occipito-anterior positions; second, to change presentations of the face with the chin behind into those of the vertex with the occiput in front. Obstetricians seem to be quite of one mind that in occipito-posterior positions the attempt

should be made to effect anterior rotation by pressure of the fingers upon the side of the head, and, as it is but a step from the introduction of the fingers for this purpose to the introduction of the whole hand, I have no doubt that the use of the hand for the transformation of the occipito-posterior into occipito-anterior positions is very common; the operator limiting his manipulations to the head, or perhaps extending them so as to include the fetal trunk, and thus, as suggested by Grandin and Jarman, securing rotation of the fetus on its axis until the occiput is anterior. I think, however, that few obstetricians are aware of the fact that in at least very many cases of mento-posterior position it is a very easy matter to convert this unfortunate presentation into the occipito-anterior, as recommended by Parry. Certain it is that in a recent issue of the *New York Journal of Gynecology and Obstetrics* Dr. Malcolm McLean reports a case in which he accomplished this conversion, as though the manœuvre were quite unique and original.

My first experience with this manœuvre was on the 16th of May, 1883, when I happened to be down in Wheeling with the late Prof. Landis. While there we were asked by Dr. James E. Reeves to assist him in a case, to which he had been called in consultation, of face presentation with the chin behind. The patient had been in labor for many hours and the head was thoroughly impacted in the pelvis. Dr. Reeves, Dr. Landis, and myself each used the forceps in an attempt to effect delivery, but only succeeded in more thoroughly impacting the head and shoulders. It was at this stage that I suggested to Dr. Landis the possibility of his flexing the head and thus securing a vertex presentation. Dr. Landis had written a book on "How to Use the Forceps" and was thoroughly familiar with the literature of the authorities. He said at once that the manœuvre could not be accomplished, and, without making any serious attempt, yielded his place to me, when I succeeded with surprising ease in elevating the head, flexing it, and producing the desired vertex presentation. Although the presentation was now favorable, Dr. Landis, regarding the child as dead, at once perforated the skull in order to facilitate delivery, which was accomplished, though not without difficulty, with the aid of the forceps. The woman was a primipara, of apparently about the average size, and had been in labor many hours. The child, notwithstanding the loss of blood and brain matter as the result

of the craniotomy, weighed nearly eleven pounds. I firmly believe that had Dr. Landis been less familiar with obstetrical traditions he would have accomplished the conversion even more easily than did I.

Mento-posterior positions, when recognized early, can usually be converted without difficulty into mento-anterior, and since 1883 I have had but one other occasion to resort to the above-mentioned manipulation. In this case the child was of average size and the woman a multipara. The head was in the pelvis when I was called to the case, but under chloroform I easily elevated the head sufficiently to secure flexion, and delivery was promptly accomplished.

Mento-anterior positions, while looked upon with dread by some of the older obstetrical writers, are now known to be practically devoid of danger to both mother and child, and present slight obstacles to a perhaps somewhat tedious delivery. If delivery be too long delayed, forceps may be easily used if deemed advisable. The chief objection to the presentation is in the unhandsome appearance of the babe when thus born. The mento-anterior position, then, being a not undesirable presentation, if we can convert the occipito-posterior position into this we have certainly accomplished much for the well-being of both mother and child.

August 22d, 1888, I first attempted this manipulation and accomplished it easily. The woman was aged 31 years, in labor with her fourth child. She had been in labor three hours when I first saw her, and the head was in the pelvis with the occiput directly posterior. I endeavored in vain to secure rotation; I therefore, under chloroform, pushed up the head, assisted by a hand applied to the shoulder externally, and with comparatively little difficulty secured extension, and with the next pain allowed the head to again descend with the chin to the front. The child was a large one, and after waiting several hours for her to deliver herself I applied forceps. In addition to the usual swollen condition of the features always found in face presentations, this child had a double harelip, so that when born it presented an appearance that was truly hideous. Since that time I have found it necessary to resort to this manipulation at least a half-dozen times, with only one failure. This failure occurred August 16th, 1895, while preparing this paper. The patient was a primipara, aged 34 years, and weighing between

two hundred and fifty and three hundred pounds. She had been in hard labor thirty-two hours when I was called by my friend Dr. Dixon to assist in delivery. The child was large, weighing when born thirteen pounds, and I found it impossible to extend the head. I was able, however, to secure rotation of the entire fetus so as to convert the presentation into the occipito-anterior. I then left her, thinking she would be able to deliver herself, but after a further delay of four hours was again called and safely delivered her of a living child with forceps. But for the large padding of fat, which not only interfered with the intrapelvic manipulations, but also prevented the external hand from affording much assistance, I am certain I would have succeeded in extending the head in this case.

As showing the ease with which these manipulations may be sometimes performed under chloroform relaxation, I will report the following case, which occurred during the writing of this paper. September 3d, 1895, I was called to see a woman, aged 25 years, at full term with her second child. The presentation was occiput-posterior and she had been in hard labor for five hours. The os was entirely dilated, and the waters had been discharged for some time. As the pains were powerful and frequent, and the woman in good condition, I watched the case for over an hour, trying to secure rotation of the occiput by the fingers applied to the side of the head. The attempt was, as I had anticipated, futile. I therefore gave her chloroform, and, introducing the hand, had no difficulty in elevating the fetal mass so as to secure extension. I then allowed the head to descend into the pelvis. As, however, the pains were still in abeyance, and to see if the manœuvre were entirely feasible under the circumstances, I again elevated the fetus, flexed the head, and then, passing the hand up alongside the head to the shoulder, without any difficulty rotated the entire mass so as to make the occipital presentation anterior. The head at once descended and labor was completed with the next two pains. The patient made an uninterrupted recovery.

In making these manipulations it is absolutely essential that the patient should be thoroughly anesthetized; she should be lying on her back, the hips well drawn to the edge of the bed, and the legs supported by assistants. Whichever hand the operator can best use should be introduced, the other hand being applied externally to assist the internal hand. If there is not

room in the pelvis the entire fetal mass should be lifted up above the brim by the hand placed against the presenting part. The fingers should then be worked along the side of the child's head until the occiput in the one case, or the chin in the other, can be caught and brought down; being still held in this position, the presenting part should be allowed with the next pain to sink into the pelvis, after which delivery should be accomplished in the usual way.

Summary.—First, when, in mento-posterior positions, the chin fails to rotate to the front, before resorting to mutilation of the fetus or to Cesarean section, an earnest, well-directed effort should be made to convert the face presentation into the occipito-anterior position of the vertex. Second, in occipito-posterior positions in which rotation fails to be accomplished, a similar effort should be made to convert the occipito-posterior into a face presentation, mento-anterior. The required manipulations, if properly directed and under profound chloroform anesthesia, will rarely fail to accomplish the desired result.

THE PROPHYLACTIC TREATMENT OF ECLAMPSIA GRAVIDARUM.¹

BY

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THE practice of *preventive* medicine is said to be the highest art as well as the noblest duty of the physician, and in no class of cases will he better attain to this eminence than by the successful prophylactic treatment of the convulsions peculiar to the pregnant or puerperal woman. Eclampsia being, however, but a *symptom* of disease, and not the disease itself, and occurring as the result of more than one pathological condition, our treatment of prophylaxis will have to be applied to the amelioration or termination of the causative pathological lesion, so that in the treatment of the subject it will be necessary at the outset to define clearly the kinds of cases that come under the heading of

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

the paper. The writer recognizes two varieties of convulsions that may occur as a result of the pregnant or puerperal condition—viz., first, those of a purely nervous character, which usually occur in women of neurotic habit and those who are predisposed to epileptic attacks; and, second, convulsions which occur as a result of some change in the blood and tissues of the patient due to renal disease, as especially indicated by the presence of albumin in the urine.

Cases of the first class are comparatively rare, and when occurring the prognosis is usually good; but, as there are cases on record of a fatal termination, even in the early months of pregnancy, from this cause, prophylaxis should ever be in mind in their consideration. They may be of a hysterical or epileptic character and require for their prevention, in each variety, much the same treatment, although the prognosis in the cases of convulsions occurring in epileptic subjects, being much less favorable, would indicate for them more positive and active treatment. The systematic use of the bromides and chloral hydrate is especially to be relied on during the progress of gestation, although other and more active agents may have to be employed, even to the extent of the induction of labor. During the progress of labor chloroform is probably the most useful prophylactic and should always be employed in this class of cases, and the termination of labor be followed by the administration of suitable anodynes until the symptoms denote the return of the equilibrium of the nervous system. Blood-letting should be resorted to when the symptoms indicate the imminence of convulsions. Hypodermatics of morphia with atropia may be advantageously used where a rapid effect is required, but the tendency of the opium derivatives to produce cerebral congestion would in some cases contraindicate its use.

In one case of the hysterical variety seen by the writer blood-letting would doubtless have averted the attack. The eclamptic seizure took place in the person of a delicate primipara about two hours after normal labor, and was preceded by a constant condition, following the close of labor, in which there was normal temperature, flushing of the face, suffusion of the eyes, and a full, tense pulse of 100. Immediately after the attack twenty ounces of blood were taken from the arm and no more convulsions occurred. The urine was examined a week before confinement and also immediately after the convulsion, and in both

instances found to be free from albumin. Attacks of this kind are doubtless due to the irritation of the brain and spinal cord as a result of the congestion caused by the severe exertions of labor, and should be anticipated by the accoucheur during labor with suitable remedies for their prevention.

That cases of this class do terminate fatally authentic records will testify. Dr. Paquy, at a meeting of the Obstetrical and Gynecological Society of Paris in April, 1894, reports the case of an epileptic who became pregnant and had one hundred and nineteen fits at delivery. At the same time Charpentier stated that he had observed an epileptic who had convulsions during her first labor, became pregnant again, and died after a succession of fits during the fourth month. The latter case I believe should have had the benefit of operative interference, as, in the opinion of the writer, abortion is not only justifiable but demanded in cases of great severity of this kind, where medication and other forms of prophylactic treatment fail to control the symptoms. A case in point was in the person of a patient of Dr. W. G. Henry, of Detroit, which I attended with him in July, 1894, at Harper Hospital. She was a primipara, 23 years of age, married two years, pregnant three and a half months; family history as bad as possible, syphilis, insanity, and epilepsy being all represented on the father's side. She had convulsions when a child and was confined in an asylum for seven months at 14 years of age. Began menstruating at 17. At 16 she received an injury to the head by being struck over the left parietal region. Two months after conception occurred she began to have severe pain over the left eye in the region of the old injury, and ptosis of the lid developed; then aphasia was noticed, which gradually increased; the muscles of the left side of the face twitched constantly, and the tongue was protruded from the mouth and kept constantly moving, with a continuous drooling of saliva. With the progress of intensity of these symptoms the patient's mind became more and more disturbed and she presented much the appearance of a case of dementia. Examination of the urine revealed no abnormality of that secretion. After a trial of nearly a month of antisyphilitic treatment, in connection with the symptomatic use of the bromides and other medication, it was decided to attempt to relieve her by the induction of abortion, which was begun on July 17th and terminated on the 21st. Labor was induced by means of the intro-

duction of a bougie, after a slight dilatation of the cervix, which was found to be nearly three inches in length. The operation was performed under complete chloroform anesthesia, and while the patient was coming out of the anesthetic she had a severe epileptic fit. After this she remained in much the same condition as formerly until the advent of severe labor pains four days after, when all her cerebral symptoms began to clear up. This amelioration of symptoms evidently began with the separation of the membranes and dilatation of the cervix, and continued until the expulsion of the contents of the uterus, when the symptoms cleared up completely, and on the day succeeding the abortion she appeared perfectly natural in every respect. The patient has remained well ever since, with the exception of three epileptic fits which she had shortly after leaving the hospital.

In this class of cases, having no definite uniform pathological lesion by which we can regulate and guide the course of treatment, and each case standing by itself and owing its existence to some peculiarity in the nervous organization of the patient, the prophylactic treatment for all cases cannot be laid down in general terms, but each individual case must be handled according to its own peculiar manifestations.

Such, however, is not the case with the second class. Here we have a definite and uniform pathological lesion which indicates clearly the *direction*, at least, of the course of treatment. The condition of the urine, furnishing us constantly with bulletins from the seat of war, gives us, when correctly read, the most reliable information as to the condition of the enemy within. Knowing that to the renal disease are due the convulsions, and that they only occur after functionation of the kidneys has been very largely and for a considerable time diminished, the plan of treatment can be very definitely laid out. The fort to be stormed is in plain view; the serious question is regarding the method of attack.

Early diagnosis is of the utmost importance to the success of any preventive treatment, and to insure this the urine of every pregnant woman should be systematically examined by the physician at least every two weeks after the sixth month. When albumin is found to be present immediate treatment should be commenced and daily examinations of the urine made thereafter. The percentage of albumin present in the

urine should not be considered the only test as to the patient's danger from eclampsia, as many patients will have considerable quantities of albumin and still be in no danger if the constituents of the urine otherwise indicate good renal functionation. On the other hand, a very small percentage of albumin—often only a trace—may be present in scanty urine of low specific gravity, which condition, if at all persistent, portends serious trouble for the patient, which, if not in the form of eclampsia, will be some other manifestation of cerebro-spinal lesion. As is well known, this latter condition of the renal secretion, when persistent, usually points to the diagnosis of contracted kidney and calls for prompt and decisive treatment if eclampsia is to be averted. The *condition of the urine* should be the guide for treatment rather than the *symptoms* of the patient, as there is often a lack of premonitory symptoms, the first to appear being the convulsion. The usual premonitory symptoms—vertigo, severe headache, ringing in the ears, blindness, etc.—which commonly precede the eclamptic attack, if not entirely omitted from the programme, often precede the convulsion for so short a time that no opportunity is given for effective treatment before the storm bursts and treatment is handicapped. When these symptoms are present the most decisive measures should be adopted, but the constant aim in the prophylactic treatment should be to anticipate and prevent them occurring, and if the condition of the urine, and not the symptoms—or I might say the *lack* of symptoms—is taken for the guide, this can usually be accomplished.

The prophylactic treatment may be divided into *dietetic*, *medicinal*, and *operative*—the latter to be adopted as a last resort in case of failure of the others.

In simple cases of albuminuria without scanty secretion many patients will do well and be tided along to safe confinement on the exclusive milk diet without medication. When the urine is also scanty diuretics should be used, and when these fail repeated purgations are indicated. Warm baths, to favor cutaneous elimination, should also be employed and iron tonics given. The patient's mind should be kept in as quiet a state as possible, as anything that tends to induce cerebral congestion may precipitate an eclamptic seizure. Venesection should be promptly used, especially in plethoric patients with full, strong pulse, as soon as any eclamptic symptoms appear. Even a

slight cerebral congestion in such cases should suggest this remedy.

It is not necessary in this brief article to specify the various drugs to be used as diuretics, purgatives, etc., as there is unfortunately no remedy that the writer is aware of that is any better for the albuminuria of pregnancy than for the same pathological condition under other circumstances; in fact, the opposite holds true in many instances, as medicines that yield favorable results in simple nephritis often fail utterly when used in the albuminuria of pregnancy. As an iron tonic I believe that Basham's mixture is exceptionally good, which fact is doubtless due to its possessing also diuretic properties.

In those cases, previously referred to, in which the symptoms of contracted kidney are present, as indicated by the renal secretion remaining scanty and insufficient in spite of treatment, and in those cases where the use of the diuretics, purgatives, and warm baths bids fair to wear the patient out long before her time for confinement, I believe that operative treatment should be instituted. If the period of viability of the child is reached I think there should be no hesitation in inducing premature labor, and in those rare cases that occur earlier I believe that the diagnosis of this organic lesion of the kidney should not only warrant but compel the performance of the operation.

Unfortunately for the free discussion of this subject in all its bearings, it has for its objective point eclampsia only, which is but one of several outcomes of albuminuria of pregnancy; and as the prophylactic treatment of eclampsia also tends to prevent the other sequelæ of the disease, and as the treatment cannot be intelligently considered without some reference to them, and also for the purpose of emphasizing the necessity of operative treatment as I have indicated, I take the liberty of quoting a few statistics that bear on the subject.

As regards the mortality of albuminuria of pregnancy, even when *unaccompanied* by eclampsia, I quote the following from Cazeaux and Tarnier, page 497: "From a statement by this author [Imbert Gonbeyer] it appears that of sixty-five cases of puerperal albuminuria unaccompanied by eclampsia, twenty-one proved fatal during pregnancy and the lying-in, and six from the third to the fourth month after delivery; five cases became chronic and were found to be existent two, eight, ten, and fourteen months and seven years after the labor." It seems

to the writer that a disease which under ordinary treatment exhibits a mortality of about forty per cent certainly demands improvement in its therapeutics.

Again, I quote from Dr. Oui, of Bordeaux,¹ who observed twelve cases of albuminuria developed during pregnancy, in eleven of which the placenta was examined and in six found diseased; six out of the twelve children died, and no cause for their death besides the albuminuria and the placental lesions could be detected. In two cases where the mothers were submitted to strict treatment the children were saved; the six children who died were born of the remaining ten mothers. Three mothers died; the others were subjected to more or less careful dieting. Dr. Oui believes that where the milk diet does not improve the patient's condition it is advisable to induce premature labor to save the child. I would amend that by adding, "and the mother," as I believe she should have at least equal consideration with the child. The old rule of giving the benefit of the doubt to the mother should not be forgotten.

It is well known that nephritis, when long continued, is liable to cause organic tissue changes which often survive the disease that caused them and that are more or less inimical to life. The arteries often become atheromatous and sclerosed, rendering the patient liable to accidents caused by brittle and non-elastic blood vessels. Hemiplegia in these cases may result during some unusual strain on the circulatory system years after the initial disease, from the breaking of some of these brittle arteries in the brain. Total or partial blindness may likewise result from retinal hemorrhage.

Churchill reports thirty-four cases of paralysis, in twenty-two of which the paralysis occurred during pregnancy and in the remaining twelve either during or after labor. Imbert Goubayer believes that the apoplexy causing the paralysis is due to albuminuria, and that uremia is the direct cause of the various forms of puerperal paralysis. This conclusion may be mainly correct; that it is not always so has been proven in my own experience. One case in point was in the person of a patient of one of our Fellows, Dr. C. G. Jennings, of Detroit, which I saw with him. In her first pregnancy she suffered for several months with albuminuria and was delivered prematurely by

¹ *Archiv de Tocologie et de Gynécologie*, Paris, December, 1893.

Nature. In her second confinement complete hemiplegia occurred at the conclusion of labor, and in this instance there was no albumin in the urine or other sign of renal disease. The lesion was doubtless due to the presence of degenerated tissue in the blood vessels of the brain, resulting from the long-continued albuminuria of the previous pregnancy.

During parturition the accoucheur should watch closely the progress of labor and do all in his power to prevent, control, or modify the various causes of dystocia. If the pains become irregular and of a spasmodic character he must apply such remedies as will tend to restore them to the regular and normal type. The use of chloroform as an anesthetic will be usually of the first importance, as by its effect in diminishing the irritability of the nerve centres the pains will become natural and rhythmic in character. Chloral hydrate, the bromides, and warm baths may also be used to advantage. Venesection should be resorted to early if symptoms of cerebral congestion appear. Where Nature's forces continue weak and insufficient, and very little or no progress is being made, the forceps should be used as early as practicable, and the labor terminated in as speedy a manner as is compatible with safety to the maternal parts, as the danger from cerebral congestion is largely in direct ratio to the severity and duration of labor. After the completion of labor the uterus should be firmly held in a state of contraction by the hand for a sufficient time to prevent large clots forming within the organ, as the contractions necessary for their expulsion may tend to excite convulsions. Nerve sedatives should afterward be continued as symptoms indicate.

698 WOODWARD AVENUE.

ECLAMPSIA GRAVIDARUM.¹

BY

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ETIOLOGY.

CONVULSIONS occurring in the later months of pregnancy, during labor, and immediately after childbirth, accompanied by

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

loss of consciousness and followed in severe cases by coma, are termed eclampsia.

Authors differ widely as to the frequency of this affection, placing it at from one in two hundred to one in six hundred. These figures, coming almost exclusively from maternity institutions, are in the first ratio doubtless too high and do not correspond with those of private practice. James Ross¹ met with this complication eleven times in 6,777 deliveries, or once in 616 private cases. This comparatively rare occurrence may be explained by the fact that the convulsive seizures are not dependent upon a single cause, but that in all probability a combination of causes is required for their production.

Many theories have been advanced to explain the nature of eclampsia; none has proven satisfactory, and the etiology of this grave complication of labor is still an undecided question.

The theory which has found the most advocates, and which still stands pre-eminent in the discussions on the etiology of eclampsia, is based upon the investigations of Lever, who first called attention to the relation between albuminuria and puerperal convulsions. His observations were confirmed by various authors, and led to the view that the attacks were the result of blood-poisoning by urea, that they were uremic and identical with those occurring in kidney diseases.

Frerichs taught that true eclampsia occurred only in pregnant women suffering with Bright's disease. He, however, modified the older view, asserting that the urea, retained in the blood current, underwent decomposition and was converted into carbonate of ammonia. While the possibility of this transformation was almost universally denied, a number of authors accepted the intoxication hypothesis, the uremic origin, for all cases of puerperal convulsions.

The opponents of this doctrine, basing their arguments upon post-mortem examinations, proved that in by no means a small number of the cases the uremic intoxication theory was not applicable, both albuminuria and kidney lesions being absent. In order to meet these objections it became evident that new elements had to be brought into the discussion. Such attempts have repeatedly been made, but they have never been successful.

Hecker, supporting Frerichs' view, regarded especially the

¹ AMERICAN JOURNAL OF OBSTETRICS, vol. xxxii., p. 386.

acute form of nephritis as an important etiological factor. External irritations are the inciting causes; they are only effective, however, in cases with kidney lesions. He admitted the absence of albuminuria in some instances, without giving any explanation.

According to Spiegelberg all cases of true eclampsia are of uremic origin. The cause is a kidney lesion which either pre-existed or developed during pregnancy. In some instances the rapid development of kidney symptoms shortly before or with the paroxysms is due to an acute affection of the renal vessels, probably a reflex contraction, originating in the uterus and resulting in acute suppression of the urinary secretion. All cases of eclampsia without albuminuria are to be designated acute epilepsy. The term acute epilepsy was objected to, such a distinction being not warranted by the clinical phenomena. The explanation of the sudden development of albuminuria, however, met with more favorable consideration and is supported even by recent investigators.

Urinary stasis, due to pressure of the gravid uterus upon the ureters, causing renal lesions and subsequently convulsions, is the theory suggested by Halbertsma; it was proven untenable by post-mortem examinations.

Pressure upon the ureters by the fetal head (Löhlein¹), pressure upon blood vessels caused by the premature descent of the fetal head in the pelvis (King²), are two other theories which failed to give acceptable explanations.

A much-debated hypothesis was presented by Traube and Rosenstein, who held that the convulsions were the result of an acute cerebral anemia. Increased arterial pressure, resulting from hypertrophy of the left ventricle of the heart, causes in hydremic patients edema of the brain, which, by compression of the cerebral vessels, results in acute anemia with its consequences, convulsions and coma. Originally suggested by Traube as an explanation of the uremic paroxysms occurring in nephritis, this theory was applied to eclampsia by Rosenstein, who asserted that in pregnant women, even in the absence of renal lesions, the essential features were present—hydremia, hypertrophy of the heart, and, during uterine contractions, increased arterial pressure.

¹ Trantenroth : *Zeitschrift für Geburtshülfe und Gynäkologie*, vol. xxx., p. 136.

² Parvin : *Hirst's System of Obstetrics*, vol. ii., p. 77.

Strange to say, this hypothesis, which clinical evidence as well as post-mortem examinations proved to be erroneous, led, for a time at least, many prominent obstetricians astray.

While it appears probable that cerebral anemia plays an important part in the etiology of eclampsia, the explanation offered by the Traube-Rosenstein theory is evidently not acceptable. Schröder,¹ commenting on this view, expressed his belief that the anemia is the result of arterial contraction due to reflex irritation of the vasomotor nerves. Based upon the experiments of Kussmaul and Tenner, who succeeded in producing convulsions in animals by ligating the carotids, he argued that it is in the highest degree probable that puerperal eclampsia, like the epileptic attack, is caused by acute anemia of the brain resulting from contraction of blood vessels. The causes which produce this contraction are still unknown. He held that in pregnant, in lying-in, and especially in parturient women, as in children, there is an increased susceptibility of the nervous system, so that contraction of the vessels occurs from causes which under ordinary circumstances would not be effective. With this increased nerve irritability, the altered condition of the blood due to kidney lesions, the irritation of peripheral nerves, possibly of the uterine nerve fibres, may suffice to produce contraction of the vessels.

The influence exerted by gestation upon the nervous system, the increased nervous excitability, often so marked in primiparous women, led the old obstetricians to regard eclampsia as a reflex neurosis. A sudden emotion, anxiety, fright, were looked upon as the causes which provoke paroxysms. The effect of violent emotion upon the circulatory system through the vasomotor nerves is well known and may readily account for the occurrence of cerebral hyperemia or anemia, if we take into consideration the increased sensibility of the nervous system, which really is in a pathological and therefore predisposing condition. But hyperemia is at present supposed to be the effect and not the cause of the convulsions—a supposition which I believe to be not proven.

Bidder,² in his study of 455 cases of eclampsia, found that 337, or 74.3 per cent, were primiparæ—figures which are almost in accord with those given by Winckel, Olshausen, and Löh-

¹ Lehrbuch der Geburtshülfe, 1886, p. 722.

² Archiv für Gynäkologie, vol. xlv., p. 167.

lein. This frequent occurrence in primiparous women may possibly find an explanation in the hyperesthetic nervous system, which, rapidly responding to mental impressions, may produce the attacks by reflex action upon the convulsive centres. Of interest and supporting this view are the observations of Joseph Price,¹ who first drew attention to the comparatively frequent occurrence of puerperal convulsions in primiparous women illegitimately pregnant.

This theory is slowly fading away, but in spite of all hypotheses the fact remains that the convulsive attack in a number of cases is exclusively the result of reflex nerve action.

Blood-poisoning is the theory which of late received the support of many authorities. The toxic substance is still unknown; it is by no means urea. Winter,² discussing this view, says it is not yet possible to decide whether the inflammation of the kidneys is primary and results in the retention of the substances which have been formed in the body, or whether the poisonous substances are external invaders and give rise to the nephritis as they are excreted, similarly to what occurs in scarlet fever, diphtheria, and other infectious diseases. This last opinion is believed to be the true one, and attempts have been made to seek in bacteria the noxious cause.

Micro-organisms have been found in the blood and urine of pregnant women suffering from albuminuria and eclampsia by Doléris³ and Blanc, while Favre cultivated a "micrococcus eclampsie" from the placenta of an eclamptic patient. Gerdes,⁴ after making a number of bacteriological investigations, came to the conclusion that puerperal eclampsia is produced by a specific micro-organism found in the blood and various tissues of women suffering from this affection.

It is not necessary to comment upon these bacteriological theories, as carefully conducted experiments have failed to confirm the claims of the investigators mentioned above.

A review of the literature within recent years shows that the etiology of eclampsia has undergone remarkable changes. The theory of Frerichs with its various modifications has been continuously losing ground, and it is worthy of note that at the

¹ *Annals of Gynecology*, vol. v., p. 487.

² *Ibid.*, 705.

³ *Prutz : Zeitschrift für Geburtshilfe und Gynäkologie*, vol. xxxiii., p. 9.

⁴ *AMERICAN JOURNAL OF OBSTETRICS*, vol. xxvii., p. 467.

present day most of the leading authorities have abandoned it. It is only within a short time that this uremic-intoxication hypothesis has lost its attractiveness and that investigators are looking in another direction to solve the enigma of puerperal convulsions.

Recent investigations have again confirmed the intimate relation between albuminuria and puerperal convulsions. In four hundred cases of eclampsia observed by Olshausen, Dührssen, and Gusserow albuminuria was present in ninety-eight per cent. Trantenroth¹ found that albuminuria developed during the second half of gestation in forty-six per cent in women whose kidneys were normal before conception took place. In the vast majority of cases it is of renal origin and dependent upon a degenerative process in the kidneys, a condition described by Leyden as the kidney of pregnancy (*Schwangerschaftsniere*) and confirmed by various authors. The appearance of albuminuria during the first stage of labor, according to Trantenroth, is the rule, non-albuminous urine the exception; it is almost exclusively of renal origin.

On the other hand, the view to regard the terms eclampsia and uremia as synonymous does not receive confirmation from post-mortem reports. There can be no doubt that pregnant women, like any other human being, are subjected to those serious forms of kidney diseases which, according to our experience, in some instances terminate in uremia, convulsions, and coma. But such instances are rare. Prutz,² who made microscopical examinations of the kidneys of twenty-two cases dead from eclampsia, concluded that it was impossible to refer them to morbid changes in the kidneys except in a small number. He also emphasizes the striking disproportion between the gravity of the attacks and the intensity and extension of the renal disease.

It cannot be denied, however, that renal insufficiency plays an important part in the etiology of eclampsia, but only as a predisposing factor. "Renal disease," as Parvin³ expresses it, "is not only very far from being a constant forerunner of puerperal convulsions on the one hand, but its absence on the other hand is no certain proof that such convulsions will not occur."

It is impossible to give a satisfactory explanation of eclampsia

¹ Trantenroth, l. c.

² Prutz, l. c.

³ Parvin, l. c.

at the present time. The results of the examinations into the pathological anatomy are by no means sufficient to establish any theory. It remains to be seen how long the hypothesis of blood intoxication, which recently has been so favorably considered, will stand the test of time. There is something very striking in this theory, but does it explain the sudden disappearance of all the symptoms in the vast majority of the cases? I believe not.

118 LIBERTY STREET.

A REPORT OF THE GYNECOLOGICAL SERVICE OF MOUNT
SINAI HOSPITAL, NEW YORK, FROM JANUARY 1st,
1883, TO DECEMBER 31st, 1894.¹

BY

PAUL F. MUNDÉ, M.D.,
Gynecologist to the Hospital.

(With forty-five illustrations.)

OPERATIONS.²

The majority of the operations were performed in the large general operating room of the hospital, which is situated on the top floor with a sunny southern and western exposure. It is provided with all the modern appliances for asepsis and for the antiseptic performance of operations. Unfortunately the extremely large general surgical service of the hospital at times renders it inevitable that operations on cases which are not strictly clean, such as suppurating and gangrenous wounds of different varieties, should precede more or less recently—that is, on the same day—fresh plastic or abdominal operations. In order to avoid as much as possible the danger of septic contamination from such unclean cases, the hospital authorities have during the past year had constructed on the same floor a second

¹ Continued from page 510.

² All operations in my service were performed by myself, with the exception of a comparatively small number which were done by the gentlemen who kindly substituted for me during my annual summer vacation (notably Drs. Gerster, Wyeth, Fluhrer, and Scharlau, and the assistant gynecologist, Dr. Joseph Brettaner, whose service dates since 1893). Occasionally the respective house surgeon was allowed to perform minor operations under my personal supervision.

operating room, which is used only for absolutely clean cases, all other doubtful and infectious operations being performed in the old operating room. In this way I hope that one great source of danger of infection has been removed. It is to the credit of the surgical house staff, overworked as they usually are, that so many large surgical procedures have been carried out with so much success as the records show, under circumstances at many times, especially in former years, so decidedly unfavorable. So far as my service is concerned, there is one unpleasant feature connected with operations—namely, that patients are obliged to be transported from the first floor on one side of the hospital to the top floor on the other side before being anesthetized, and are after the operation again conveyed along the same route to the ward. Of course they are carried up and down on an elevator, but in winter the draughts necessarily present in so large an institution cannot entirely be kept away from patients who have often been for a long time subjected to a more or less high temperature in the operating room, and an occasional pleurisy or pneumonia may possibly be traced to this exposure. Private patients are usually anesthetized in their rooms, but even they have to be carried along two corridors and up one story before reaching the operating room.

Anesthetics.—The anesthetics used in my service have been either ether or chloroform, preferably ether in longer operations and whenever the heart showed the least trace of weakness. Chloroform was employed for shorter operations and whenever there was any sign of renal or pulmonary disease. The utmost care is exercised, of course, in the administration of the anesthetic, and I have never seen any decided deleterious result from its immediate administration, but I have seen several instances of acute nephritis and broncho-pneumonia following the use of ether which I was obliged to attribute to that form of anesthetic. Any sign of renal disease (casts, renal epithelia, or albuminuria), or even renal insufficiency as shown by a decided diminution of the renal secretion, has usually caused a substitution of chloroform for ether as an anesthetic. Still, I consider ether safer than chloroform, and I have often had patients under the influence of ether from two to three hours. On the other hand, I remember having a private patient deeply under chloroform (to be sure, it was an obstetrical case) from 2 to 8 P.M. without any bad effects.

A curious and rather unfortunate accident occurred as an indirect result of the anesthesia in one case, a private patient. After the operation, which was an abdominal hysterectomy for uterine fibroid, the patient complained of inability to use her left arm. At first it was thought that pressure on the axillary plexus of nerves during the crossing of the arms behind the head, as is customary during anesthesia, had produced a temporary paralysis of the arm which would disappear in a few days. But as the arm remained useless a more thorough examination was made and a fracture of the coracoid process discovered, which had probably been caused while lifting the heavy woman on or off the operating table. When she left the hospital the forearm had not regained its strength, and I heard from the lady a year later that her hand was still weak. This case should be a lesson to exercise care in handling patients during anesthesia. I have seen several other cases in which temporary loss of power in one arm followed an operation on the pelvic organs and where the operator certainly could not be blamed for this symptom.

The surgical staff, of course, endeavor to be scrupulously clean and aseptic at all operations; the same applies to the nurses. I myself always put on a clean undershirt and a pair of trousers which I keep at the hospital and which are baked after every operative clinic, and of course observe all the usual precautions as regards scrubbing and disinfection of my hands and arms. The solution used for disinfection of the hands and arms is a 1:1000 solution of bichloride, that for instruments boiled sterilized water, and for the irrigation of wounds the same or Thiersch's solution; in unclean wounds, 1:10,000 bichloride solution. I do not believe it possible that more scrupulous antisepsis can be employed anywhere than is done in the operating rooms or the wards of Mount Sinai Hospital, and still at rare intervals an unexpected and mysterious case of septic infection has occurred. Visitors are admitted to the operations with the distinct understanding that they carry no infection with them and refrain from conversation or from handling anything or anybody connected with the operation.

Each surgeon has his own operating day, mine being Wednesday, the usual hour being 2:30 p.m. I have frequently been occupied in the operating room, constantly operating with the exception of the time employed for the anesthesia of a new

case, from that hour until 6 or even later. The anesthesia is administered in a room opposite the operating room and is under the care of one of the junior assistants attended by two nurses. No patient is returned to the ward until she has at least recovered semi-consciousness. Urgent cases are of course operated on at other times, as they may happen to occur.

VULVA. Abscess of the Vulvo-vaginal Gland.—My practice has always been to open these abscesses thoroughly from top to bottom, wash them out with 1: 1000 bichloride solution, and then pack them with iodoform gauze. A smaller incision than this will usually result in a superficial healing of the abscess, with the formation of pus sooner or later in its depth, necessitating a new operation, and this process may be repeated a number of times until finally a radical cure of the abscess is achieved. Only in one instance have I found it necessary to excise the entire gland. This proved to be quite a bloody operation, requiring from ten to a dozen ligatures on bleeding branches of the internal pudic artery.

Epithelioma.—This disease is of comparatively rare occurrence on the vulva. Of course there is no other treatment but that of complete extirpation, if possible, and I have found the knife preferable to the actual cautery, since the latter leaves so large a sloughing surface as to render its closure tedious and difficult. Of course the diseased tissue must be so freely excised as to afford a fair chance for a permanent recovery. The raw surfaces can be approximated by sutures and should unite by first intention. If the disease has spread so far that there is no possibility of securing a union by first intention, it is better to use the Paquelin cautery and to destroy the tissue as thoroughly as possible, no matter what time may be required for the closure of the resulting wound. Relapses, unfortunately, are not uncommon, hence the prognosis in these cases is usually doubtful. (See Fig. 3.)

Hematoma is usually due to an injury inflicted accidentally. If it occurs during childbirth it is produced by the rupture of a vessel during the distention of the parts by the protruding head; but when occurring in the non-parturient state there is usually some extraneous injury at fault, such as a fall on the back of a chair or some other sharp surface, a kick or other accidental bruise. Only when the effusion of blood is of considerable size is it necessary to evacuate it; if smaller, Nature usually takes care of its absorption.

The *Papilloma* or elephantiasis mentioned in the report comprised the clitoris, labia majora and minora, and occurred in a mulatto woman four months pregnant. As the growth had increased during the pregnancy and was likely to interfere with parturition at term, I concluded to remove it and did so by means of the knife, having first ligated the whole mass with the elastic ligature, which was kept in place by means of several long needles which were passed transversely through the base of the tumor. As the tumor was excised deep stitches were introduced and tied, which effectually controlled the hemorrhage. The patient made a perfectly uneventful recovery and pregnancy was uninterrupted. (See Figs. 1 and 2.)

Nymphomania.—In the one case of this disease in which an operation was thought justifiable I excised the whole clitoris together with the labia minora, the indication being incontinence of urine, unquestionably produced by a long-persisting habit of masturbation. Observation in the ward and the general appearance of the patient sufficed to make this diagnosis. The wound was closed by catgut sutures and healed by first intention. The result was surprising, for the tone of the bladder rapidly improved and on discharge of the patient she had regained its entire control.

PERINEUM.—*Perineorrhaphy* for laceration of the perineum was performed one hundred and eighty-four times, one hundred and twenty-one times for incomplete laceration and sixty-three times for complete. Of course there were very many other cases of laceration of the perineum admitted, but only those are recorded in which the laceration was of sufficient importance to require operative repair. During the earlier years of my incumbency as gynecologist of the hospital my method of operation for laceration of the perineum was that recommended by Emmet and Thomas—namely, a semilunar or butterfly-shaped denudation of the vaginal orifice and posterior vaginal wall, and the introduction of silver-wire sutures transversely so as to approximate the denuded surfaces. In complete laceration the method described by Emmet in his well-known text book was the one employed, silver wire also being the suture material. My results with these forms of operation were relatively very good, since the majority of the cases recovered with a very fair restoration of the normal condition. Still, there were, in the complete lacerations, an unpleasantly large proportion, if in the

aggregate still small enough, of failures, the sphincter and chiefly refusing to unite and incontinence persisting more or less. In this respect my experience did not differ in any way from that reported by almost every operator in this line. During a visit abroad in 1886 I saw Tait in Birmingham do a flap-splitting operation for complete laceration of the perineum. Although he did it in four minutes (by my watch), and so hastily that I presume most of the spectators failed to catch the princi-

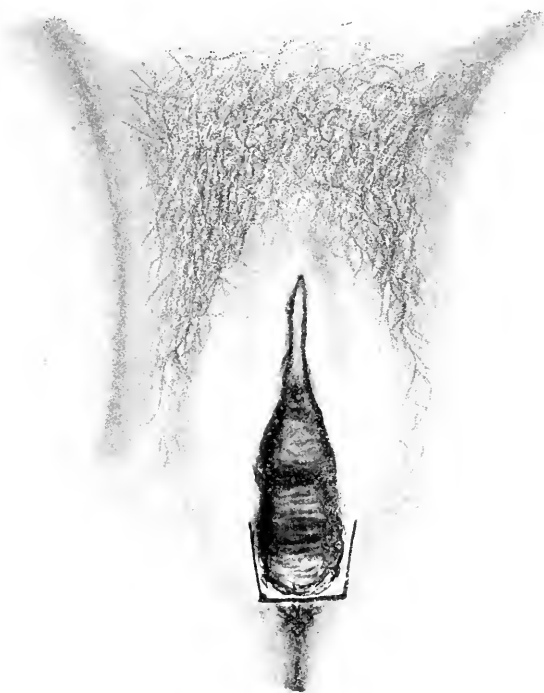


FIG. 21.—Lines of incision in flap-splitting operation for incomplete laceration of perineum.

ple of the operation, I happened to be so close to him that I saw exactly how it was done, and it struck me that, particularly for complete laceration, it was by far superior both in method and time of execution to the older procedures. While the operations of Emmet and Thomas referred to could scarcely be performed in less than half an hour, the flap splitting operation for both complete and incomplete laceration was easily accomplished in from four to ten minutes. Since that time I have without exception employed this method for the respective injuries and

have had no reason to be dissatisfied with the results, since in these eight years I have had at least one hundred complete cures. (Figs. 21, 22, and 23.)

To those who do plastic surgery it is not necessary to say that such work is always subject to more or less imperfect results, since primary union is not always obtained throughout a large denuded surface; hence it is not surprising that a certain number of these one hundred and eighty-four perineorrhaphies were



FIG. 22.—Lines of incision in complete laceration of perineum.

only partially successful. In the main, union was so complete as to restore practically the perineum to its normal condition. This applies entirely to the cases of incomplete laceration; those of complete laceration were so fully successful that I do not recall a single instance in which the patient was discharged without the restoration of the retentive power of her sphincter ani. I admit that in a number of cases operated on by the old method the result was produced by secondary contraction of the wound due to healing by granulation and second intention, but substantially the restoration of the bowel to its normal function

was obtained in every case. The one case of death has been a special cause of regret to me, since it was entirely avoidable, having been caused by septic infection (how introduced I do not know), which might have been counteracted had the stitches been removed early and thorough disinfection of the wound taken place, no matter whether the operation was a failure or not. In this case, by an unfortunate chance, I was prevented

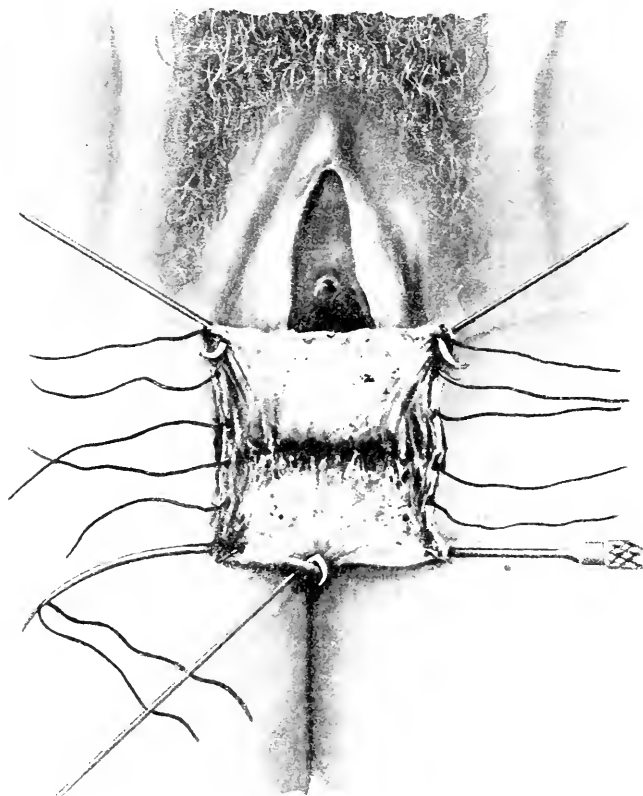


FIG. 23.—Wound and introduction of sutures in flap-splitting operation for lacerated perineum, complete or incomplete.

by illness from visiting the hospital for several days. When I saw the patient again I at once perceived the urgency of the danger, removed the stitches, and disinfected the wound, but unfortunately too late. This was a complete laceration operated upon by the flap-splitting method, and I am inclined to criticise myself for having made too deep incisions which involved too much tension of the sutures and a sloughing of the tissues com-

pressed by them. This should be a lesson not to make these transverse incisions too deep and to be very careful that the stitches do not interfere with the circulation.

It has always been my practice, since I assisted Prof. Gustav Simon in Heidelberg in 1872 in a number of cases of operation for laceration of the perineum, both incomplete and complete, to thoroughly evacuate the bowels before the operation and to keep them moved daily afterward, instead of following the old plan of constipation and first movement on the ninth or tenth day after removal of the stitches. This method of Simon's was not adopted for quite a time, but I believe is now the universal practice among gynecological surgeons; and to it I think are due the recent favorable results after most of these operations. My plan is first to have the bowels thoroughly evacuated, during at least three days before the operation, by laxatives; an enema is given within two hours of the operation, in order to be sure that the lower bowel is entirely empty and does not interfere with the operation. I usually stretch the sphincter and thoroughly before beginning to operate, in order to prevent tenesmus, or I divide it backward with a knife after tying the stitches. Besides I always insert a white rubber tube wrapped with iodoform gauze into the rectum to allow the escape of gas; this is removed when the first alvine evacuation takes place. The patient being kept on fluid diet for three or four days after the operation, it is not necessary to attend to the bowels during that time, but on the morning of the fourth day I usually order a laxative—licorice powder or Rochelle salts—and after that see that the bowels are moved regularly by a mild laxative every day. Enemata should be avoided unless the fecal matter is hard and not easily evacuated, because it is easy to tear open the freshly united sphincter with the nozzle of the syringe. The bladder after perineum operations should be evacuated by the patient herself, if she is able to do so in the recumbent position, each urination being followed by a careful irrigation of the perineum and vagina with plain boiled water, precaution being taken not to interfere with the top stitch. The perineum then should be carefully dried with lint or absorbent cotton and dusted with iodoform, and a thin strip of iodoform gauze placed over it and the legs kept in approximation by a moderately tight bandage. If the cervix has been sewed or the uterus curetted at the same time there may be some discharge from that

organ, which of course should be washed out with warm sterilized water once or twice daily as occasion may demand. After the bowels have been moved the patient's diet can be as she pleases. For at least two weeks the patient must not assume a sitting or erect position, although she may turn on either side *ad libitum*. The stitches are usually removed between the seventh and tenth days, inspection showing that they do not cut or cause edema, when it may be necessary to remove them, all or in part, sooner. I seldom allow a patient after a perineorrhaphy to sit out of bed under two weeks, and if it is a complete laceration usually not under three weeks.

I would say in concluding this subject that it is not, in my opinion, a good plan to do a secondary operation on a lacerated perineum under three months after its occurrence, simply because proper involution of the tissues does not take place much sooner; the parts are still too soft, too vascular, and too easily irritated to favor ready union by first intention. While, therefore, a primary operation for lacerated perineum may be performed within forty-eight hours after its occurrence with a fair chance of success, even at the latter date, a secondary operation should usually be deferred several months. I have noticed much ignorance on this subject among general practitioners, and therefore think it well to emphasize this point. Of course no guarantee can be given that the perineum may not tear again at a subsequent confinement, any more than the cervix after an operation for its repair. When the lacerated perineum is accompanied by a prolapse of the posterior or anterior vaginal walls a different or an additional operation is required. Of this I shall speak later on.

I will make no special reference to the *Diseases of the Rectum* which are mentioned in the report, except to say that they are very commonly associated with affections of the sexual organs, or indeed may simulate such affections, and hence it is well to remember that a woman, if she has pelvic pain which cannot be traced to any appreciable cause within the sexual domain, may be afflicted with some disease of the rectum, such as stricture, ulcer, hemorrhoids, catarrh, which is the cause of the pains complained of. It is usually necessary in order to make a diagnosis to examine the patient under anesthesia, dilate the sphincter, and with the finger or a cylindrical or other appropriate speculum expose the lower portion of the rectum, when it will easily

be seen whether the suspicion of rectal disease is correct or not. There is really no difference in the treatment of the diseases of the rectum in the female from those which obtain in the same diseases in the male. In one respect the female has the advantage, since it is easier to evert the lower portion of her rectum for inspection and treatment than is the case in the male. With two fingers in the vagina, the patient being on the side, the lower two inches of the anterior wall of her rectum can be pushed out through the anus and a fissure, hemorrhoids, or ulceration of that part easily detected. I have already spoken of



FIG. 24.—Digital eversion of rectum through the vagina. Patient on left side.

the treatment of the diseases of the rectum under a previous heading.

BLADDER. *Urethral Caruncle.*—My treatment for this affection is to expose it thoroughly under anesthesia, draw the tumor down with tenacula, excise it carefully from its base, and, after arresting the hemorrhage by pressure, canterize it with strong nitric acid. Before using the caustic I usually dilate the urethra thoroughly with a steel two-branched dilator, in order to prevent the common consequence of all operations upon the female urethra—that is, tenesmus. A caruncle of the urethra, if entirely removed and its base canterized in this manner, should

not return. Incontinence will not follow this dilatation of the urethra, unless it is carried to such an extent as to paralyze the canal, which is not at all necessary.

A *Prolapse of the Urethra* which so closely simulated a caruncle as to be, at first sight, mistaken for it occurred in a girl 9 years of age. Its true character was recognized by the fact that a probe passed into the bladder through the centre of the protrusion and that the latter could be replaced, which of course is not the case with a caruncle. (See Fig. 5.) The treatment consisted in excising all the prolapsed mucous membrane and sewing the raw edges together with interrupted catgut sutures. Result, recovery.

The one case of *Urethrocele* mentioned was operated on by making a buttonhole incision at the lowest portion of the prolapsed urethra, cutting out as much of the redundant mucous membrane as could readily be drawn through this opening, and passing a drainage tube through it and the normal meatus. A cure was effected as soon as the urethral tissue regained its normal condition, when the drainage tube was removed and the fistula closed spontaneously.

A *Fibroid of the Posterior Wall of the Urethra* was met with in one instance. It was easily removed by simply splitting the capsule and enucleating it. It was of the size of a hickory-nut. Its occurrence is exceedingly rare.

Of the cases of vesico-vaginal fistula I have already spoken.

VAGINA. *Imperforate Hymen*.—Strange to say, in all my experience of nearly thirty years I have met with but one case of simple imperforate hymen attended by hematometra and hematocolpos. The diagnosis was so simple that a mere glance at the bulging hymeneal membrane was sufficient. Without anesthesia the membrane was opened and about twenty ounces of tarry blood slowly evacuated. The utero-vaginal cavity was not irrigated, but an aseptic pad loosely applied over the vulva and the organs allowed to return gradually to their normal state. Convalescence was absolutely uneventful. It seems to me not at all necessary to perform this operation under the many minute precautions which were formerly advocated, such as allowing a very slow and gradual escape of the retained blood in order to prevent its possible regurgitation through the Fallopian tubes. This is scarcely likely if the blood is allowed to escape freely through the new opening in the hymen. Only in one other in-

stance did I see an imperforate vagina, and that was where there was a double vagina and uterus, the menstrual blood escaping freely from the left side, whereas on the right side the hymen was closed at a point near the vulva. The protrusion of this portion of the vagina, together with pain on the right side of the pelvis, were the symptoms which called for an examination. The bluish, bulging membrane, together with the bimanual examination and sounding of the left side, rendered the diagnosis fairly easy, and the opening of the occluded sac confirmed it. I excised the whole of the septum and united the raw surfaces

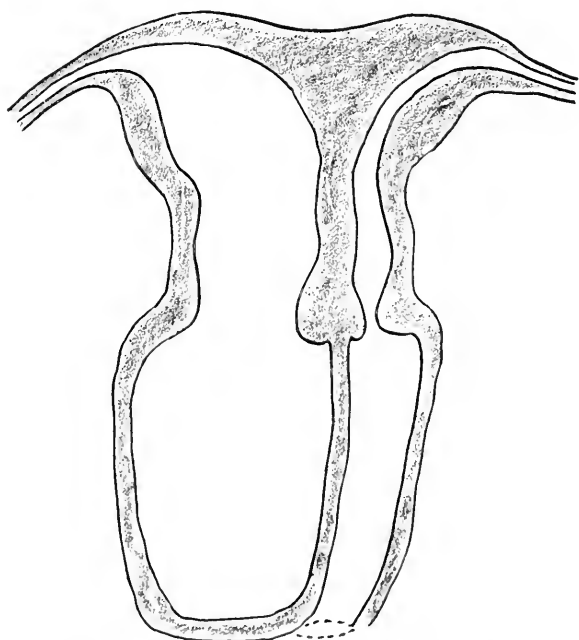


FIG. 25.—Double uterus and vagina. Right side imperforate.

with catgut sutures. A secondary hemorrhage occurred about forty-eight hours later, probably due to a failure to include thoroughly an arterial branch, but it was arrested by tamponade and the patient made a good recovery.

All the cases of *Stenosis* of the vagina were acquired, being due to contraction following parturition. Division and dilatation of the constricted portion readily effected a cure. The cases of atresia were, however, mostly congenital. In two instances the vagina was entirely absent. One was a girl of 21 who had never menstruated nor had she had many menstrual

molimina. Bimanual rectal and vesical examination showed apparently absence of the uterus and ovaries, except a small indistinct body situated in the middle of the cavity of the pelvis. As the girl was very anxious to have a vagina constructed, with the hope that possibly a uterus and ovaries might be found, I acceded to her request and by transverse dissection separated the bladder from the rectum. The small body previously felt turned out to be a rudimental uterus containing about a half-ounce of thick mucus. Its edges were sewed to the newly formed vagina and the canal kept open by Sims' dilators. No ovaries were discovered. When discharged the girl had a respectable vagina. What became of it later on I am not able to say. In the second case the woman was married. She had had a vagina formed by another operator, who had failed to find either uterus or appendages. As neither she nor her husband succeeded in keeping this vagina open, it closed almost completely and I was asked to make a new one. On putting the case before her, however, plainly, and telling her that unless she and her husband kept the canal open it would close again, and that there was no prospect of her ever having a child, she decided not to have anything done and was discharged.

Epithelioma.—While cancerous degeneration of the cervix uteri is exceedingly common as a primary affection, it is quite rare to see the disease develop in the vaginal walls, except secondarily from the cervix. Still, two cases of uncomplicated epithelioma of the vagina came under observation (see Fig. 10). In neither of these cases was the uterus in any way involved. In both the disease was situated on the posterior wall of the vagina. Of course nothing could be done except by the curette and scissors and the actual cantery to destroy the malignant tissue as much as possible. A cure was out of the question.

Colpocystotomy for Cystitis was performed in ten cases. The operation is by no means difficult. It consists in making an incision through the anterior vaginal wall into the bladder about half-way between the symphysis pubis and the cervix. The incision is about an inch in length. Sims' speculum is used and the anterior vaginal wall pushed forward by means of a grooved sound in the bladder. After the bladder is opened the bladder mucous membrane is sewed to the vaginal wall by a running catgut suture, in order to prevent its too early closure. The bladder is then thoroughly washed out two or three times a day,

according to the virulence of the catarrh, with a 1 : 1000 boracic acid solution or with plain warm salt water. Not until the bladder mucous membrane has entirely regained its normal condition and the urine shows absolutely no trace of cystitis is it safe to close the opening. This event may be deferred for from three to six months or longer. The closure of the opening is quite as simple as its formation. Its edges are pared and the surfaces approximated by wire or silkworm-gut sutures.

Cystocele.—Cystocele or prolapse of the anterior vaginal wall and bladder was operated on in forty-three cases, the operation with one exception being that devised by Prof. Stoltz, of Nancy. This consists in denuding a circular area from two to three inches in diameter on the anterior vaginal wall, encircling it by a stitch of thick silk the ends of which cross each other just below the meatus urinarius. The denuded surface is then pushed inward with the sound and the stitch firmly tied, precisely as the mouth of a tobacco pouch is closed by its string. This puckers the redundant portion of the anterior vaginal wall into the bladder, where it unites and soon shrinks so that it in no way interferes with the functions of either bladder or vagina. The stitch is removed at the end of two weeks or allowed to cut through, there being only one suture to divide just under the meatus urinarius. For this reason this method is particularly applicable to cases where the posterior vaginal wall is at the same time subjected to an operation. In the one case in which Stoltz's operation was not used I employed an elliptical denudation with transverse wire stitches according to Emmet and Sims, the perineum having been sewed at the same time. It was fully a month before I could remove the stitches from the anterior vaginal wall, and within three months the longitudinal cicatrix gradually separated and the cystocele returned as badly as ever. Hence I did not repeat this operation, since my experience with Stoltz's method has been very much more favorable in this respect. The bladder can usually be emptied by the patient herself. If not she should be catheterized; but I much prefer to avoid the catheter, since in this particular operation it seems to be more prone to excite irritation of the bladder than after perineorrhaphy or other operations. I have already stated that I do not employ this operation for cystocele as a rule unless I combine it with the operation for rectocele at the same sitting, because I find that, unsupported by a restored posterior vaginal

wall, even a well-contracted anterior vaginal wall is liable to give way and allow a return of the prolapse.

Posterior Colporrhaphy, or operation for rectocele—that is, prolapse of the posterior vaginal wall and rectum—was performed one hundred and ten times. In the majority of instances the operation was done for this condition only, but in many instances it was performed together with a constricting operation on the anterior wall, perineorrhaphy, trachelorrhaphy, and perhaps Alexander's operation, the indication for this combination being a prolapse of the uterus and vagina. In the



FIG. 26. Stoltz's operation for cystocele and Hegar's operation for rectocele.

earlier days I used to operate on rectocele by the old butterfly denudation method of Emmet, which is fully described in his text book and all the others who have copied from him. It was a very ingenious, exceedingly well-devised, and all in all successful operation, and I abandoned it only when I saw in Prof. Hegar's clinic in Freiburg in 1886 how much superior his method is to the old process. (See Figs. 26 and 27.) This operation of Hegar consists in making a triangular denudation on the posterior vaginal wall, beginning at a point corresponding to the highest elevation of the rectocele as it is drawn up toward the

symphysis pubis, and ending on either labium at a spot where it seems to the operator best to locate the posterior commissure of the new perineum. The mucous membrane is removed in longitudinal strips until the whole surface is denuded. Then, beginning at the upper angle, by means of a thick catgut suture, which is interlooped and securely tightened before the next stitch is taken, the whole denudation is closed from above downward until the vaginal orifice is reached. Particular care is



FIG. 27. — Stoltz's and Hegar's operations with stitches inserted in rectocele and suture tied in cystocele.

taken by irrigation and tightening of the stitch to keep the whole surface clean and in good apposition. When the vulvar orifice is reached, with a Peaslee needle a deep suture is passed from labium to labium at the upper border of the denudation, the catgut stitch is held taut and included in this first suture of silkworm gut, which is at once firmly tied. The edges of the remaining portion of the incision, which is now almost entirely cutaneous, are then approximated by a series of deep silkworm-

gut sutures which are intended to catch up the separated fibres of the levator ani muscle. If all has been properly done the perineum is brought up to such a height as to resemble that of a virgin and the posterior vaginal wall is proportionately contracted. The silkworm-gut sutures which are external are usually removed at the end of seven to ten days, the wound being kept thoroughly aseptic by careful irrigation, vaginal and cutaneous, in the interval. It is well to facilitate drainage from the vagina by passing a thin strip of iodoform gauze into the canal at the operation, which can be removed permanently after forty-eight hours. The bladder may be either catheterized or spontaneous urination with subsequent irrigation allowed. The bowels are moved on the third or fourth day. Other treatment like that of ordinary perineorrhaphy. My results with this operation have been so uniformly successful that I now prefer it to any other form of operation for rectocele.

UTERUS. *Laceration of the Cervix*.—I have already said so much on this subject under the heading of diseases that I will only add that my views on this subject remain very much the same as when enunciated by me in an article on "The Indications for the Operation for Laceration of the Cervix" (*AMERICAN JOURNAL OF OBSTETRICS*, January, 1879), and in the chapter on the same subject in the second edition of my book on "Minor Surgical Gynecology," 1885. I have seen no reason whatever to change my views either as to the significance of the lesion, the indications for its treatment and operative repair, or of the benefits following such operation, during the last ten years. I can safely say that wherever the indication was properly drawn the operation has in every respect answered my expectations—that is to say, when a cervical catarrh, an enlarged, subinvolted or hyperplastic uterus with or without menorrhagia, or a hard, dense, cicatricial cervix called for the operation, I can scarcely remember an instance in which I was disappointed in the results. If trachelorrhaphy is performed for doubtful and obscure reflex symptoms which are supposed, without any sufficient reason, to depend upon the laceration, it is but natural that the results of the operation will often prove disappointing; but this is not the fault of the operation, but rather of the operator. I will not go into details of the operation, having already indicated them in my previous remarks. In itself the operation is not dangerous; but occasionally, owing to the cutting of one

or more of the deep stitches, a branch of the circular uterine artery may become arroded and a secondary hemorrhage occur toward the end of the first week which may prove quite serious and require the insertion of deep sutures to check it. A pelvic peritonitis or cellulitis may undoubtedly follow the operation, particularly if perfect asepsis has not been observed and if too much force is used in drawing down the uterus during the operation. In order to avoid this foreible traction on the cervix I have devised a counter-pressure hook to be used during the introduction of the stitches, which enables me so to steady the cervix as to avoid any severe traction. The other instruments used by me in this operation are long straight or sharply curved, sharp pointed seissors, strong tenacula, straight or slightly curved sharp cutting needles with a square shank (devised by me), and a Sims or Emmet needle-holder. The suture material is always silver wire, unless the uterus be so prolapsed as to render the cervix accessible at the vulva, when I usually employ thick catgut, which of course need not be removed. According to the hypertrophy of the tissues of the cervix I excise more or less of its substance, sometimes even removing all the hypertrophic tissue on both lips before inserting the sutures; in order to prevent a closure of the cervical canal in such cases I insert a strip of iodoform gauze, which is changed every forty-eight hours until healing is assured. Of recent years I have associated curetting of the cervix and even of the uterine cavity with repair of the laceration of the cervix whenever there was an endometritis present, and have not found my results as to healing of the laceration or a cure of the catarrhal condition of the endometrium any worse than formerly when I was in the habit of first doing the curetting and postponing the operation for the laceration until several weeks later. Of course if these operations are combined it is not possible to apply iodine or another caustic to the endometrium, since it would interfere with the healing of the cervical lesion.

Amputation of the Cervix was performed four times for hypertrophic elongation the result of laceration and prolapsus of the uterus. My plan was first to dissect up the vaginal mucous membrane together with the bladder in front and the rectum behind, if necessary to a point about two inches above the external os, and then to amputate the thus exposed hypertrophic cervix by the galvano-cautery wire or with the knife, having

in the latter case previously passed deep sutures through the vaginal and cervical tissue so as to be able to check hemorrhage promptly after the amputation. I have been exceedingly well satisfied with the results obtained from this procedure in cases of prolapsus. Of course, if there was a prolapse of the vaginal walls at the same time, I have repaired it by the plastic operations already described. In nine cases I amputated the cervix for carcinoma with the galvano-cautery wire, going up as high as possible. In three of these cases, as already stated, a cure is reported, but in the other six I know that a relapse soon occurred.

Curetting for Cancer of the Cervix was performed thirty-four times, and was of course merely a temporary means of alleviating hemorrhage and discharge and possibly retarding the progress of the disease. The sloughs produced by the fifty per cent chloride of zinc pads applied after the curetting of course helped to destroy an additional area of cancerous tissue. I have seen the progress of the disease thus retarded from six months to four years, both the curetting and zinc cauterization having to be repeated at intervals. I have many times seen the hemorrhage entirely arrested by this treatment, the subsequent progress of the disease being slow and proving fatal by its toxic effect upon the general health. Hence I think it my duty to practise this curetting and zinc cauterization in cases where I find it impossible to extirpate the whole diseased tissue, but I never expect a cure from any such treatment.

Curetting for Endometritis offers a very much better chance of a cure, especially if the uterus is swabbed out with a twenty per cent solution of chloride of zinc immediately after the curetting. I have already referred to this subject in this article.

Curetting of the endometrium for Menorrhagia produced by fibroids should certainly be employed whenever the removal of the uterus and appendages does not seem imperative. I have known great benefit to result from the thorough scraping of the endometrium and its cauterization with tincture of iodine or even with nitric acid.

Vaginal Hysterectomy was performed by me eleven times for carcinoma of the cervix. My first operation was done in September, 1884, and was comparatively so easy that I was quite enchanted with the method and read a very enthusiastic article

in its favor before the American Gynecological Society in Chicago in October of the same year.¹ Unfortunately within nine months the disease returned in the cicatrix, although at the time of the operation it was thought to have been thoroughly removed. I am sorry to say that in all the other successful cases of vaginal hysterectomy which I have performed, both in the hospital and in private practice (twenty-four cases), a speedy return has been the invariable rule, so that I am now pretty well satisfied that it is a rare occurrence for a cancer of the cervix uteri to be seen by me early enough to promise success from a complete extirpation of the organ. This may of course be only my misfortune, but I do not see why patients of this class should not come under my observation as early as under that of some of my colleagues who do this operation very frequently and who report excellent immediate and ultimate results. Of the twenty-seven vaginal hysterectomies which I have performed for cancer in hospital and private practice, only three have died from the operation. These were my second and third cases, where I did not appreciate the danger of the hemorrhage from the numerous small vessels wounded when opening the posterior and anterior peritoneal pouches. In both these cases death seemed to be due to loss of blood from this source. My last case, operated on last summer in Hanover, N. H., died of surgical shock, superinduced by excessive previous anemia, but not from loss of blood during the operation. The immediate mortality cannot be said to be so great, being only eleven per cent. In one case, after removal of the uterus, it was found that the rectum was so badly torn by the traction on the uterus, which was adherent to its anterior wall, that it required a very tedious application of catgut sutures to close the rent. The patient, however, made a very rapid recovery and was well for over a year, when the disease returned and she eventually succumbed to it. *I have made up my mind most positively that in no case will I ever again remove the uterus for cancerous disease, whether of the cervix or body, per vaginam or by abdominal section, unless the organ is so movable that any possible extension of the disease to its surroundings can be absolutely excluded.* It is not worth while to remove a cancerous uterus unless one can be positively sure that all the diseased tissue has been excised, even though the patient may recover

¹ See Gynecological Transactions, 1884.

without trouble from the operation. I confess that, so far as technical facility is concerned and a better survey of the field, I by far prefer abdominal hysterectomy in Trendelenburg's position for cancer of the uterus to the vaginal method. I have always employed ligatures for the vessels, never having been able to make up my mind that the clamps were reliable as permanent hemostatics.

So far I have not happened to meet with a case where I could conscientiously perform the now so popular operation of extirpation of the uterus per vaginam for diseased appendages and pelvic suppuration. I do not deny that I may see such a case at any time; indeed, I had one in my service last spring, where, after a comparatively simple celiotomy for adherent tubes and ovaries, for some unknown reason, weeks after the recovery of the patient, a diffuse pelvic inflammation with large exudates set in, with the eventual breaking down into pus of one portion of the exudate after the other. As I was about going on my summer vacation, I turned the case over to the assistant gynecologist, Dr. Brettauer, with the remark that if I were to remain on duty I should certainly do vaginal hysterectomy in this case and open all the pelvic sinuses and abscess pockets. Dr. Brettauer performed this operation in two sittings, and told me that he found it exceedingly difficult, the patient almost succumbing from secondary hemorrhage. However, she eventually recovered her health entirely. I do not, therefore, question the justifiability of vaginal extirpation of the uterus for suppuration of the appendages and pelvic tissues in properly selected cases; but my experience certainly leads me to regard such cases as not very common, as rather the exception than the rule in diseases of the adnexa and pelvic inflammations, and I cannot help questioning the judgment of surgeons who report with pride several hundred such operations performed by them during the last three or four years with but trifling mortality. It seems to me that these gentlemen are riding a hobby as fascinating as it is likely to be ephemeral, for I believe some leading German operators (Leopold, of Dresden, for instance), who surely are not timid with the knife, are calling a halt on this indiscriminate and reckless vaginal slaughter of the uterus. A few more years will doubtless put this operation where it belongs—that is, in the position of a most excellent method for diffuse pelvic suppuration which resists less radical measures,

but not to be recommended for chronic endometritis or diseased appendages which can be safely removed by celiotomy.

Removal of Fibroid Tumors per Vaginam was performed twenty-one times when the tumor had become polypoid and dilated the uterine canal sufficiently to permit its being drawn into the vagina by volsella forceps, or when Nature herself had already delivered the tumor into the vagina. Care was always taken, before cutting through the pedicle, to incise the capsule of the tumor as near the uterine wall as possible and enucleate the growth, so as to avoid injuring the uterine tissue proper.

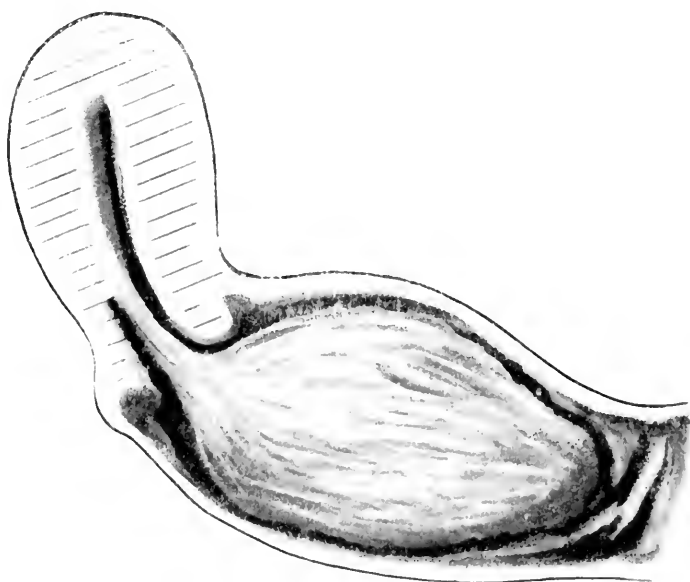


FIG. 28.—Fibrous polypus springing from posterior wall of uterus.

This accident is the more liable to occur, unless this precaution is taken, because the traction used to deliver the polypus usually inverts more or less that portion of the uterine wall to which the tumor is attached. Some of these operations were exceedingly difficult.

In three cases the fibroid tumor was embedded in the tissues of the cervix only and projected deep into the vagina. Fig. 29 shows such a hard fibroid, in a virgin 40 years of age. It was removed with great difficulty by splitting the capsule and enucleating it with the fingers while traction was made on it with

volvella. It weighed two pounds. The vagina and perineum were badly torn, and repaired by a secondary operation. The second case was similar, but the tumor was not quite so large. In the third case the woman was six months pregnant, the membranes were ruptured, and the umbilical cord was prolapsed. I removed the tumor in the same manner, by splitting its capsule, enucleation, and traction. It weighed three pounds. I then removed the fetus and placenta. All three women recovered.

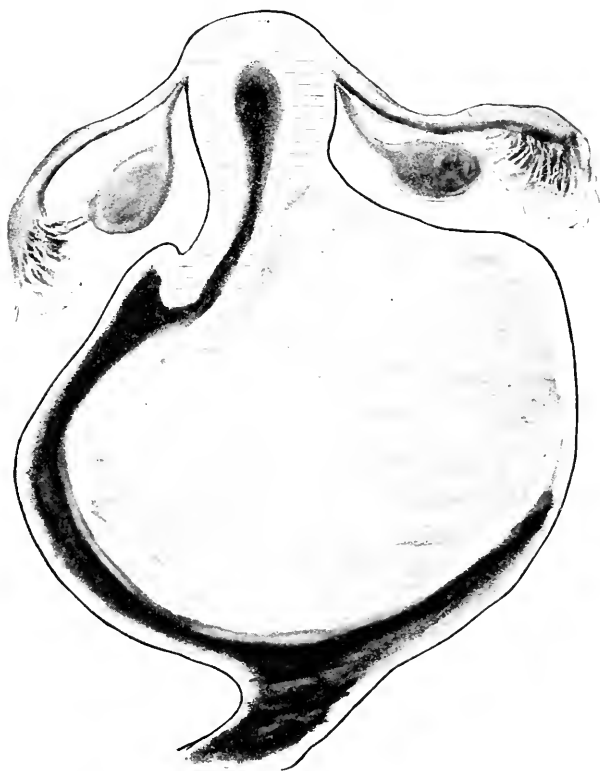


FIG. 29.—Interstitial cervical fibroid removed by vaginal enucleation and traction, weight two pounds.

Abdominal Hysterectomy for Fibroid Tumors of the uterus was performed by me twenty-nine times with four deaths.¹ Until the Trendelenburg position was introduced into this country I always employed the extraperitoneal treatment of the pedicle,

¹ Since January 1st, 1895, I have done three additional abdominal hysterectomies for fibroids, all successful. I removed all but the cervix and closed the abdominal cavity completely, without drainage, as here described.

transtfixing it]with long pins, ligating it with an elastic ligature underneath the pins, and attaching it to the lower angle of the

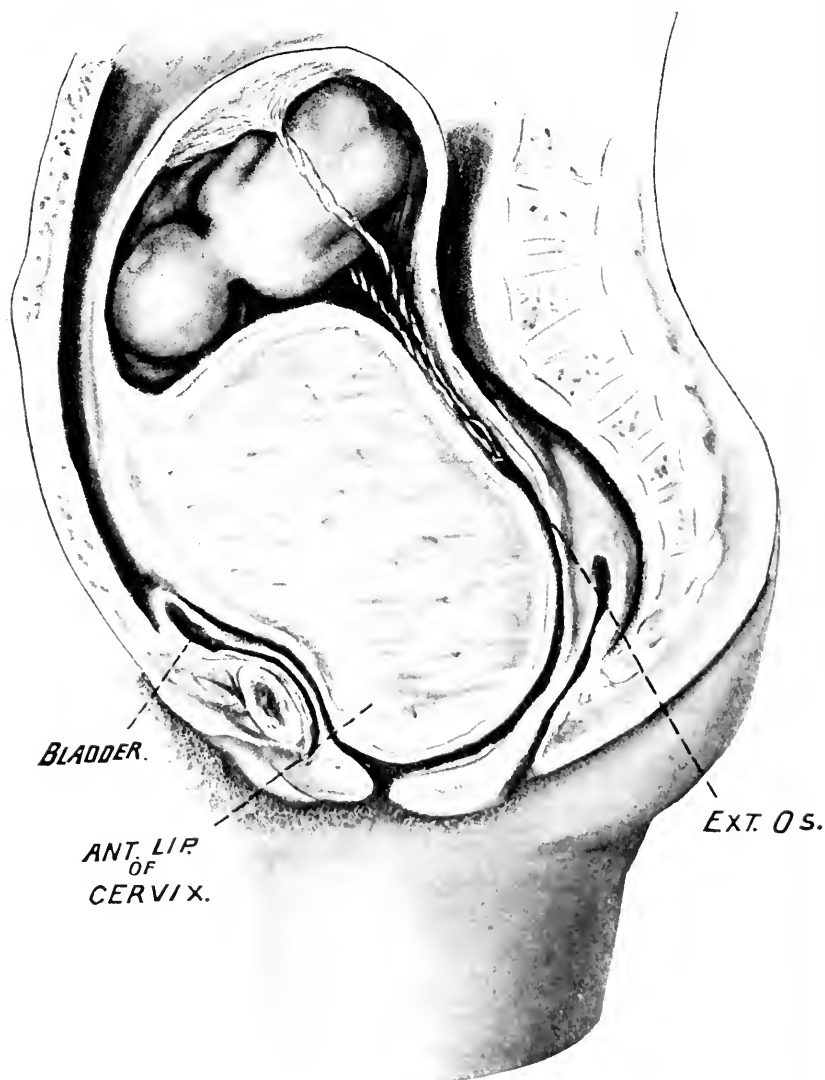


FIG. 31.—Pregnancy at six months. Interstitial cervical fibroid weighing three pounds removed by enucleation and traction.

abdominal wound. The parietal peritoneum was then stitched to the peritoneum of the pedicle below the ligature according to Hegar's method, and the abdominal wound closed. My

results from this operation were very good, but of course it was not the ideal method, and of recent years I have followed the plan I believe first described by Chrobak, but claimed by Baer, Goffe, and other operators in this country. It consists in ligating the ovarian and uterine arteries on either side, freeing the uterus down to the vaginal vault, then separating its peritoneum

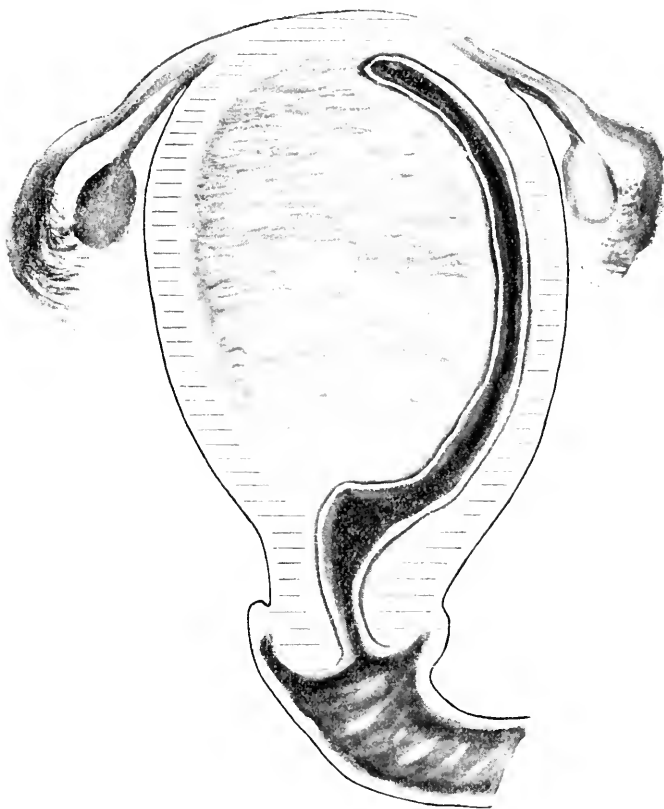


FIG. 31.—Submucous fibroid removed by dilatation of cervical canal with tupelo tents, incision of capsule, enucleation, and traction.

in front and behind down to the pelvic roof, and removing the uterus with the tumor. All ligatures are then cut short, covered with peritoneum, and the anterior and posterior flaps of peritoneum are united by interrupted or running catgut suture. The cervix is cut out, leaving only its shell. Its canal is cauterized deeply with the Paquelin, and then its walls are united with deep catgut sutures and covered with peritoneum. The cervical

cavity is therefore entirely excluded and the abdominal cavity hermetically closed. Of course in such cases there is no drainage downward, and, if the operation has been a clean one and the edges are carefully approximated, there is nothing to drain.

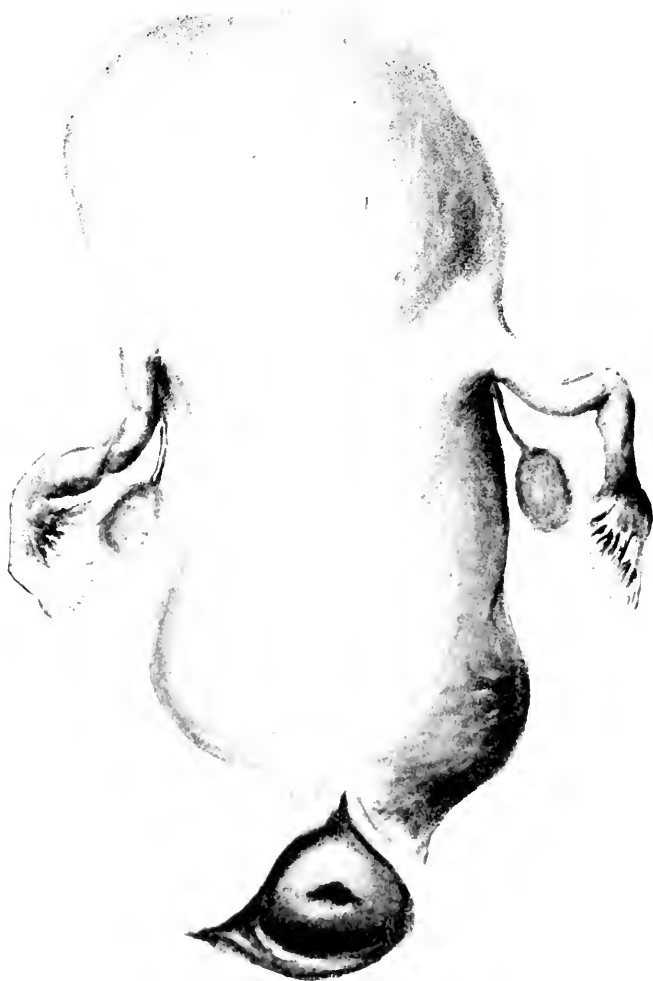


FIG. 32. —Uterus with interstitial and subperitoneal fibroids removed by abdominal section. Extraperitoneal treatment of pedicle.

I have preferred to keep the cervix in these cases, because it seems to me to offer a much better support for the vaginal roof and to be less liable to give way to the superineumbent abdominal pressure than would be a mere linear cicatrix of peritoneum.

Of course there are different opinions on this subject, and I know that the majority of operators prefer to extirpate the whole cervix, often leaving the vaginal roof open for drainage; still I feel satisfied that the method which I have followed is superior to that of complete extirpation. I have twice removed



FIG. 33.—Uterus and ovaries with multiple pediculated fibroids removed by abdominal section. Intraperitoneal treatment of pedicle.

the uterus for sarcoma of the body by abdominal section, but in these cases have of course excised the whole cervix.

So far as the indications for removal of the fibroid uterus are concerned, I desire to place myself again on record as holding that only in cases where the tumor produces decided dangerous symptoms, such as rapid increase of growth, pain, pressure on vital neighboring organs, or exhausting hemorrhage which is

not relievable by milder means, is the extirpation of the whole uterus with its appendages justifiable for fibroid degeneration.. I think it is wiser to keep cases of this kind under observation



FIG. 34.—Uterus and ovaries with subperitoneal fibroids removed by abdominal section. Elastic ligature; extraperitoneal treatment of pedicle. Lower part of tumor enucleated after removal of upper portion.

for some time and to defer radical operation until curetting, ergot, even that doubtful agent electricity, have been tried in vain. Only when these methods fail and the symptoms become more urgent or signs of peritonitis or salpingitis manifest them-

selves should the question of total extirpation be seriously considered. While subject to exceptions, it is still an axiom, I believe, that fibroid tumors *per se* do not kill, wherein they differ totally from ovarian growths. I am aware that I antago-



FIG. 35.—Pediculated fibroid and subperitoneal fibroids, removed by abdominal section. Intrapertitoneal treatment of pedicle.

nize a large portion of the so-called more progressive members of the gynecological specialty when I make these statements regarding the conservative treatment of fibroid tumors of the uterus, but I feel that my experience is sufficiently large to warrant

me in sustaining my own opinion with quite as much right as do the gentlemen who go so far as to recommend and practise the removal of the uterus and its appendages as soon as a fibroid tumor, even of the very smallest size, is detected. I prefer to stand on my own honest judgment in this matter, rather than to follow the dangerous and reckless practice of the gentlemen to whom I refer. It is not necessary to mention names, since the reports of our medical societies and the pages of our medical journals speak for themselves. The mere fact that our present improved technique permits a majority of such patients to recover from the operation is no reason why an unnecessary operation should be performed.

Ligation of the Uterine Arteries through the vaginal vault has usually been performed by me preparatory to enucleation of the cervix for carcinoma. The object of this procedure was partly to arrest hemorrhage and partly to control for a time the advance of the disease. The former indication was certainly fulfilled. I have only one experience with ligation of the uterine artery for the arrest of the growth of a fibroid tumor; it was not particularly satisfactory.

Hysterorrhaphy, ventral fixation, or hysteropexy, as it has been variously called, was performed by me for retroflexion ten times and for prolapsus twice. One of the patients died—a prolapsus case—from apparent paralysis of the heart due to enormous tympanites. As the woman would not have died from the prolapsus, I have always felt that the operation was not justified, and this is the view that I hold of all dangerous operations for chronic, not dangerous complaints. It is of course perfectly easy to open the abdominal cavity and suture the fundus uteri to the anterior abdominal wall. Naturally the appendages must be healthy. I do not include in these twelve cases all the instances in which, after removing the diseased appendages, I attached the pedicles to the anterior abdominal wall; this I do not consider to constitute a hysterorrhaphy. Several times, however, I detached the adherent appendages and found them sufficiently healthy to permit me to leave them undisturbed, and then I sewed the fundus uteri to the anterior abdominal wall for the purpose of preventing the appendages from again becoming adherent. This I think a justifiable operation, since it is conservative in its results, but I am not in favor of opening the abdomen and attaching a perfectly movable retroverted or pro-

lapsed uterus with healthy appendages to the anterior abdominal wall. Not only that there is a certain amount of danger connected with the operation itself, but in case of pregnancy the attachment of the fundus uteri to the abdominal wall must logically sooner or later interfere with the enlargement of the uterus and bring on a premature delivery. This, at least, was the case in the only instance under my observation where pregnancy followed the operation. Other observers have reported a continuance of pregnancy to term and a normal delivery. I can, therefore, not deny that this may occur, but it would hardly seem to me probable in most of the cases. Besides, it does not seem to me logical to substitute an immovable anteverted or elevated uterus for a movable retroverted one. The operation which I have performed with far greater frequency and better success, and which seems to me logically far more desirable, is that known as

Alexander's Operation for Shortening the Round Ligaments.
—I first performed it in December, 1884, after reading its description by Dr. Alexander, of Liverpool. During the next two years I repeated the operation four or five times. My first attempt was a perfect success, both as regards finding the ligaments and the retention of the uterus in the normal position. In my second and third cases I made partial failures, finding the ligament only on one side. This was my own fault. In 1886 I saw Dr. Alexander do the operation in Liverpool and was maliciously gratified to see that it gave him some trouble to find one of the ligaments. Since then, however, I have done it in all about eighty times, and while I admit its difficulties and some of its disadvantages, I still am as enthusiastic in its favor as I was after my first successful results. There are, it is true, certain very careful details to be observed when searching for the ligament; above all, the spine of the pubes must be remembered as the starting point of the fan-shaped expansion of the ligament, and from this point must the operator proceed if he expects to distinguish and locate the fibres of the ligament. But I can safely say that whenever I failed to find it readily—and that has occurred occasionally even during my riper experience—it was my own fault, and that those operators who have not found it simply have themselves to blame. One very decided objection to the operation, however, is the fact that one never can tell

beforehand whether the ligament will prove to be sufficiently thick to be of service as a means of retaining the replaced uterus in its anteverted position, and, further, it is impossible to foresee when adhesions of the ligament in the Nuckian canal may prevent its ready withdrawal. The danger, therefore, of a ligament either breaking off and retracting or of its being so firmly adherent as to prevent its withdrawal must always be borne in mind. As regards the permanency of the results from this operation, I can safely say that they leave little to be desired. A number of my patients have become pregnant, several more than once, and the uterus has been retained in its normal position after delivery. So far as I know I have seen but one relapse, and that was after an operation for prolapsus uteri (which I do not consider a good indication). I have seen but one case in which the uterus was so sharply anteverted as to interfere with the normal expansion of the bladder; and I make this statement advisedly, as a contradiction of remarks which I have recently seen alleging this to be an objection to the operation. I have followed the plan of causing my patients to wear a lever pessary for several months after the operation, merely as a matter of precaution until the ligaments were firmly adherent. In many instances where the retroversion or retroflexion was accompanied by more or less prolapsus of the uterus together with a cystocele and rectocele and lacerated perineum, and usually with lacerated cervix also, I have restored the parts to their normal condition by a series of operations at one sitting: thus, first, trachelorrhaphy, preceded if necessary by curetting; second, Alexander's operation; third, cystocele; and, fourth, rectocele and perineorrhaphy—the whole cycle occupying from one hour to one hour and a half. I have usually obtained perfect union in these cases and have had no reason to regret the combination of operations. Of course a rest of from three to four weeks in the recumbent position is necessary to assure a thorough and permanent healing of such wounds. My experiences as to Alexander's operation will be found in various articles written by me during the last ten years, such as "Four Cases of Alexander's Operation," 1885; "The Value of Alexander's Operation, etc., estimated from the Results of Twenty-three Cases," 1888; "Ten Years' Experience with Alexander's Operation, etc., sixty-five operations," 1894; from which it will be seen that I

have steadily adhered to the opinions which I at first felt myself justified in holding on this operation.

Prolapse of the Uterus and Vagina was cured in fourteen of the forty cases recorded, by first repairing the usually lacerated cervix, removing as much of the hypertrophic tissue as possible, then shortening the round ligaments by Alexander's method, and finally narrowing the anterior and posterior vaginal walls by Stoltz's and Hegar's operations, respectively, the latter of which also restored the perineum. In twenty-two cases this combination of operations failed to achieve a complete cure, owing to imperfect healing of more or less of the large plastic vaginal wounds or the gradual return of the uterine prolapse. In one case of ventral fixation, already mentioned, death ensued from cardiac syncope, owing to the impossibility to move the enormously distended bowels; and in two cases the operations were refused. The various operative procedures employed for the cure of prolapsus uteri et vaginae were all carried out at one sitting and are tabulated under their respective headings. I am not an advocate of pessaries for prolapsus, for the simple reason that I know of none which give relief without causing pain or doing harm. Only when the anterior vaginal wall alone is prolapsed, as occasionally occurs even in complete prolapse of the uterus, have I found a large Gehrung pessary to retain the prolapsed vagina and bladder, and therefore necessarily the uterus, perfectly and comfortably within the pelvic cavity. In such cases I have not operated on the cystocele, because I have found the ultimate results of a plastic operation on a cystocele alone to be unsatisfactory, since the pressure on the cicatrix when the patient begins to go about her daily duties is usually so great, when unsupported by the constricted posterior vaginal wall and new perineum, as to cause it to give way and allow the cystocele to return. Hence I prefer to give palliative relief by the Gehrung pessary, rather than perform an operation which experience has shown me furnishes only a temporary cure. Combined with posterior colporrhaphy and perineorrhaphy, however, I have found anterior colporrhaphy an excellent operation, giving permanent relief. In four cases the hypertrophied cervix was amputated, the vaginal walls being dissected up, and the wound closed with deep catgut sutures, before performing the other operations.

TABLE II.

OPERATIONS.

Operation.	Disease.	No.
VULVA.		
Incision.....	Abscess (vulvo-vaginal gland).....	11
Excision.....	Elephantiasis	1
Excision	Epithelioma.....	2
Removal.....	Polypus of labium.....	1
Clitoridectomy.....	Nymphomania.. ..	1
		16
PERINEUM.		
Perineorrhaphy.....	Perineo-vaginal fistula.....	1
	Laceration, incomplete, 121; complete, 63...	184
	Phlegmon	1
		186
RECTUM.		
	Abscess, ischio-rectal.....	2
	Condylomata acuta	3
	Fissura in ano.	3
	Fistula (recto-vaginal).....	5
	Hemorrhoids	8
	Polypus.....	1
	Fistula in ano.....	3
	Stricture.....	3
	Ulcer.....	1
		29
URETHRA AND BLADDER.		
	Caruncle of urethra.....	11
	Urethrocele	1
	Prolapse of urethra....	1
	Fibroid of urethra.....	1
	Epithelioma of bladder and urethra.....	3
Colpocystotomy	Chronic cystitis.....	10
	Fistula (vesico-vaginal).....	11
	“ (vesico-uterine).....	2
		41
VAGINA.		
	Atresia and stenosis.....	15
	Cyst.....	1
	Double vagina.....	1
	Epithelioma.....	2
	Occlusion (imperforate hymen)..	1
Anterior colporrhaphy. . .	Cystocele.....	43
Posterior “	Rectocele and lacerated perineum	110
		173

TABLE II.—Continued.

Operation.	Disease.	No.
UTERUS.		
<i>Cervix Uteri:</i>		
Trachelorrhaphy	Laceration	342
Amputation	Hypertrophic elongation	4
"	Carcinoma	9
Curetting	"	34
	Polypus	8
		397
<i>Corpus Uteri:</i>		
Curetting	Endometritis	243
"	Menorrhagia from fibroids	12
"	Carcinoma	2
"	Retained secundines	82
Discission and dilatation	Stenosis	80
Hysterectomy, vaginal	Carcinoma of cervix and body	11
"	Fibroid	1
" abdominal	Fibroids	29
"	Sarcoma	2
Hysterorrhaphy	Retroflexion (10) and prolapsus (2)	12
Alexander's	Retroversion and prolapsus	73
Ligature of uterine arteries	Fibroid	1
Induced abortion	Eclampsia	1
Version and delivery	Placenta previa	2
		516
OVARIES AND TUBES, AND MISCELLANEOUS.		
Vaginal aspiration, incision, and drainage.	Cyst of broad ligament	3
"	Hematoma and hematocele	25
"	Pelvic abscess, intra- and extraperitoneal	39
"	Intraligamentous ovarian cyst presenting deep in vagina.	2
Celiotomy (median line incision).	Cystic ovarian tumor	126
"	Solid ovarian tumor	2
"	Cyst of broad ligament	7
"	Hematoma of ovaries	3
"	Carcinoma and sarcoma of ovaries	7
"	Acute edema of ovary	1
"	Papilloma of ovary	3
"	Chronic salpingo-oöphoritis (64), reflex neurones (5), fibroids (2) ..	71
"	Hematosalpinx	2
"	Pyosalpinx	26
"	Ovarian abscess	16
"	Tubercular peritonitis	2
"	Ectopic gestation	15
"	Intestinal obstruction	3
"	General purulent peritonitis	3
"	Ventral hernia	1
"	Sarcoma of the rectus muscle	2
"	Displaced kidney (intrapelvic, removed) ..	1
"	Perityphilitic abscess	3

TABLE II.—Continued.

Operation.	Disease.	No.
Celiotomy (median line incision.	OVARIES AND TUBES, AND MISCELLANEOUS.	
	Exploratory.....	10
Laparotomy (lateral incision)	Pelvic abscess, intra- and extraperitoneal....	95
	Abdominal sinus.....	12
		397
	OTHER DISEASES.	
	Carcinoma of breast..	5
	Abscess of breast.....	1
	Abscess of kidney (nephrectomy).....	1
	Abscess of pubes.....	1
	Abscess of psoas muscle.....	1
	Floating kidney (nephrorrhaphy).....	1
	Dermoid tumor of nates.....	1
	Caries of coccyx.....	1
		12
	Total.....	1767

TOTAL NUMBER OF OPERATIONS.

On vulva.....	16
On perineum.....	186
On rectum.....	29
On urethra and bladder.....	41
On vagina.....	173
On uterus: cervix, 397; body, 516.....	913
On ovaries and tubes, and miscellaneous.....	409
Total.....	1767

TOTAL NUMBER OF ABDOMINAL SECTIONS.

Celiotomies (median incision).

Ovarian tumors and cysts of broad ligament.....	149
(Ovarian tumors, 128; hematoma ovar., 3; carcinoma ovar., 7; papilloma ovar., 3; edema acut. ovarii, 1; broad ligament cysts, 7.)	
Fibroids of uterus.....	29
Sarcoma uteri.....	2
Hysterorrhaphy.....	12
Intra-abdominal shortening of round ligaments..	2
Chronic salpingo-oöphoritis, etc.....	71
Pyosalpinx.....	26
Ovarian abscess.....	16
Tubercular peritonitis.....	2
Hematosalpinx (not ectopic).....	2
Ectopic gestation.....	15
Intestinal obstruction.....	3

Celiotomies—(Continued).

General purulent peritonitis.....	3
Ventral hernia... ..	1
Sarcoma of rectus muscle.....	2
Abdominal sinus.. ..	2
Displaced kidney (intrapelvic, removed).....	1
Perityphlitic abscess (appendicitis)....	3
Exploratory (ascites from malignant disease of liver, etc. ; displaced kidney not removed; cancer of intestine, etc.).....	16
	<hr/> 357

Laparatomies (lateral incision).

Pelvic abscess (intraperitoneal and extraperitoneal).....	95
Abdominal sinus.....	12
	<hr/> 167

Total abdominal sections.....464

(To be concluded.)

RETROVERSIONS OF THE UTERUS.¹

BY

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I FEEL that I should beg your indulgence if the first part of my paper seems elementary, but, that I may make clear what I consider the rational treatment of backward displacements of the uterus, it is perhaps best that I recall to your memories some points about its anatomy.

The uterus, as normally situated, lies almost at right angles with the axis of the body, the fundus suspended behind the pubis, above the bladder, the cervix pointing backward and a little downward. From the sides of the uterus the broad ligaments pass laterally to the sides of the pelvis. In their folds are the round ligaments, which pass from the uterus at a point just below the Fallopian tubes laterally and forward to the internal inguinal rings. They are composed largely of involuntary muscular fibres and fibro-cellular tissue.

From the posterior surface, at the point of greatest convexity of the organ, and at about the junction of the cervix with the body, are the utero-sacral ligaments, which are composed principally of aggregations of fibro-cellular tissue with some muscu-

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

lar fibres. They are covered with folds of peritoneum. All *retroflexions* of the uterus occur *at or just above* the point of insertion of these ligaments.

From the anterior surface two bands of fibro-cellular tissue pass forward to the bladder, but as they play only a very minor part, if any, in backward displacements of the uterus, I shall not describe them. In addition to these there is a certain amount of support from the vagina and its surrounding tissue. Supplementing and equalizing the power of these various ligaments is the force of intra-abdominal pressure, by which, under normal anatomical conditions, the uterus is held anteverted in the superior strait of the pelvis.

The uterus, suspended thus by its ligaments, is normally allowed a certain amount of mobility. This remains normal as long as the uterus, by its supports, retains the power of complete restoration to its normal position when displaced in any manner. When that power is lost in any degree, in so far is the condition pathological.

The body of the uterus rests, in a more or less anteflexed condition, on the bladder as on a cushion, and yields to the greater or less distention of that viscus. When the bladder is severely distended the fundus of the uterus is pushed far backward and the organ is more or less perpendicular in its relation to the superior plane of the pelvis—a position which allows the intra-abdominal pressure to be exerted in a direction that will cause descent of the uterus, the resistance of the utero-sacral ligaments being first overcome. The peculiar function of the round ligaments is, to my mind, indicated by their structure. Composed as they are largely of involuntary muscular fibre, we would naturally look for some muscular action on their part, and this they undoubtedly exert in drawing the fundus of the uterus back to its normal position of anteversion (following the contracting bladder). This, I think, is accomplished largely by muscular action and not merely by the quality of elasticity. But all muscular fibre tends to lose its contractile power by excessive or too prolonged tension, and, in the case of the round ligaments, weakened or tardy contraction allows the intra-abdominal pressure to exert its power toward backward and downward displacements of the uterus. This is generally a more or less gradual process, by reason of the resistance of the utero-sacral ligaments, which supplement and aid the round ligaments in

preventing complete displacement ; and as long as these remain normal in length and strength any displacement backward would necessarily be in the nature of a flexion.

Therefore, given relaxed or elongated round ligaments, there must of necessity be more or less backward displacement of the fundus of the uterus, especially when in the recumbent posture.

As long as the utero-sacral ligaments remain normal in length and strength the fundus will fall forward again when the erect posture is resumed, except in cases where structural change in the tissues of the uterus has occurred, causing permanent flexion. In other words, as long as the utero-sacral ligaments remain normal the displacement, if any, will be a retroflexion. When the pressure on the displaced fundus results in stretching of these ligaments to a degree equal to that of the round ligaments, the displacement will be a descent of the entire organ in the axis of the pelvis. When both sets of ligaments are over-stretched, the round ligaments much more than the utero-sacral, a retroversion results. The cervix, held by the latter ligaments, is thrown upward and forward as the body of the uterus descends into the hollow of the sacrum. There can be no prolapsus without over-stretching of both sets of ligaments ; and there can be no retroversion without this same condition but with disproportionate relaxation of the round ligaments.

In nearly all uteri which are in a state of retrodisplacement there is more or less obstinately chronic endometritis. It is as necessary that this should be relieved as that the malposition should be overcome, and disappointment will generally be the portion of one who relies on restoration to the normal position to correct the malnutrition of the organ and remove the endometritis. Active measures to cure this condition should coincide with efforts at restoration to normal position.

In all cases of endometritis in retrodisplaced uteri thorough dilatation with curetting should be the first step, accompanied by careful and thorough irrigation of the uterine cavity with an antiseptic solution, followed by the application to all parts of the cavity of a solution of equal parts of carbolic acid and tincture of iodine, or some similar medicament.

I do not practise packing the uterus with gauze at the time of an Alexander operation or a ventrofixation, on the theoretical grounds that removing and replacing it might interfere with the permanent fixation of the organ.

This procedure, I say, should precede all efforts at permanent reposition of the displaced organ, even if those efforts consist only in the careful fitting of a pessary, since, to be valuable as a curative agent, a pessary should be worn *continuously* as long as cleanliness will allow.

If in addition to the endometritis there exist subinvolution or chronic metritis with laceration of the cervix, little will be gained by restoration to position without proper repair of the laceration, removing all cicatricial tissue and diseased glands, and bringing the parts accurately together in the manner described by Emmet. It will not be necessary, in speaking to an American audience, to dwell upon the advantages of this procedure, as experience is the most convincing argument.

Having done all that is possible to place the uterine tissue in a healthy condition, the important question asserts itself. How shall we *permanently* restore the uterus to its normal position? Until comparatively recent years the retroversion pessary held the leading place among all who treated diseases of women, because it was easy to place and seemed to hold the uterus in position. So many reliable men have asserted that a pessary will sometimes effect a permanent cure of retroversion that we are obliged to accept the statement as true.

It is universally admitted that a pessary accomplishes its mission, not by holding the body up in its position of anteversion, but by holding the cervix back and thus preventing a recurrence of the retroversion.

If the tissues of the uterus are firm, so that the organ is not easily bent, a pessary will accomplish its purpose fairly well by holding the cervix back and allowing the force of intra-abdominal pressure to keep the fundus in a position of anteversion.

This one fact should be a convincing argument to us of the immense importance of the normal utero-sacral ligaments in the proper support of the uterus, and should teach us that any method which does not include the restoration of these ligaments as nearly as possible to the normal is imperfect. In those cases where the pessary accomplishes what seems to be a permanent cure these ligaments are shortened, or perhaps I should say supplemented, by the substitution of organized plastic exudate, caused by the irritation induced by pressure of the pessary on the tissues posterior to the cervix.

That the round ligaments become shortened and regain their

contractile power simply by lifting the uterus into position by a pessary and thus relaxing the tension placed on them, is to my mind problematical. I do not think that ligaments that have been so over-stretched by a chronic retroversion of the uterus ever completely regain their tone.

The importance of shortening the utero-sacral ligaments, and thus accomplishing with some degree of permanence the same indication that a pessary meets temporarily, has been recognized by many operators, notably Sanger of Berlin and Byford of Chicago; but that procedure, unsupported by other operative measures, did not meet the indications for a permanent cure, inasmuch as the fundus was left unsupported, and the deleterious influence of intra-abdominal pressure in causing downward displacement and renewed stretching of the utero-sacral supports was unimpeded.

It was therefore abandoned and operative procedures looking toward holding the fundus of the uterus forcibly forward were substituted. Among the earliest of these was the Alexander-Adams operation, which for a time created a great enthusiasm as being the natural method of accomplishing the desired end. But because of the difficulty experienced by many operators in finding the ligaments, and because it was not applicable to all cases, a violent reaction occurred and the operation fell into disrepute.

But to-day the Alexander operation, as modified by modern operators and supplemented by shortening of the utero-sacral ligaments (or, where this cannot be done, the creation of a band of organized adhesions holding the cervix back in its normal position), is the ideal operation in all cases not complicated by adhesions or badly prolapsed ovaries.

Shortening the round ligaments without any supplementary procedure may fail to give the desired permanent relief, because of the unnatural mobility of the *lower* part of the uterus.

When in the erect posture, after an Alexander operation, the uterus hangs more or less in the axis of the pelvis, held in a position of comparative anteversion by the forward force of the round ligaments and the backward force—acting on the anterior surface of the cervix and lower part of the body—of the more or less distended bladder and the perivaginal tissues, but intra-abdominal pressure tends continually to promote descent of the organ.

That the uterus must be placed and held in a position of anteversion, if we would make the cure permanent, has been universally recognized, and various methods have been adopted to accomplish this purpose, from the infolding of the round ligaments on the anterior surface of the uterus, through the various methods of ventrofixation, to the method proposed by Mann of folding the round (and broad) ligaments on themselves and uniting the folds by sutures.

The folding of the round ligaments on the anterior surface of the body was quickly abandoned, because it prevented, in a degree, the end sought, inasmuch as the fundus was thrown further back than normal and sufficient anteversion was not obtained.

For the same reason the anchoring sutures in ventrofixation have been shifted from the round ligaments and the anterior surface of the uterus, where they were first placed, to the ovarian ligaments and the *posterior* surface of the fundus, because only in this way could the organ be brought into the desired condition of anteversion. These ventrofixation procedures are faulty in that they immobilize the upper part of the uterus and leave the lower portion too freely movable; in that they interfere with the normal upward distention of the bladder and force it to distend backward; in that they offer a possibility (remote, I think) of incarceration of intestine; and in that, though pregnancy may occur and go on to normal completion, the development of the uterus is generally abnormal and miscarriage frequently results.

In *all* attempts at permanent cure of a retroversion of the uterus the operation of choice should be shortening both the round and utero-sacral ligaments to their normal length. By this means, and by this means only, can the parts be restored to their normal conditions; and restoration to the normal is the highest ambition of surgery.

The majority of cases now treated by ventrofixation can be better treated by this modified Alexander's operation.

This truth has been recognized by those surgeons who, after opening the abdomen and breaking up the adhesions, have attempted to hold the uterus permanently forward by folding the round ligaments on themselves, but these procedures have never gained the approval of the majority of operators because of anatomical faults.

When the round ligaments were folded in front of the fundus of the uterus it was thrown too far back and a normal position was impossible. The folding of the round and broad ligaments on themselves, as recently advocated by Dr. Mann, though an effort in the proper direction, seems to me faulty by reason of the acute bending of the vessels, nerves, and lymphatics of the broad ligaments.

It goes without saying that in all cases of retroversion with adhesions the adhesions must be thoroughly broken up before any attempt at replacing and securing the uterus is made; and, in my opinion, the best way to do this is by opening the abdomen and separating them thoroughly under sight.

The gradual methods by massage and pressure by medicated tampons are too uncertain in their results to allow us to hope for permanent cure by pessary or surgical effort. The method of separating these adhesions forcibly through the rectum, known as Schultze's method, is not advisable by reason of its uncertainty and danger.

Vaginal section through the cul-de-sac, for the purpose of freeing an adherent retroverted uterus, has been advocated strongly, and it has some advantages over the abdominal route and some disadvantages. There is less shock, there is no danger of ventral hernia—these are the only marked advantages. Through the vagina the ovaries and tubes can be inspected and removed, if necessary, and the utero-sacral ligaments can be shortened as well as through the abdomen. But the abdominal route is better:

1. When the ovaries are not so diseased as to necessitate their removal, but are fully prolapsed ;
2. When in the process of breaking old firm adhesions a laceration of an intestine occurs ; and
3. When, after freeing all the adhesions, it is found that the Alexander operation is not possible or is inadvisable. In such case ventrofixation (or "uterine suspension") must be made.

Badly prolapsed ovaries should be sutured to the upper borders of the broad ligaments, as acute flexion of the veins tends to chronic interstitial oöphoritis.

I have had no practical experience in vaginal section for the purpose of freeing adhesions or removing appendages, and therefore it may be that I am not a qualified critic, but I am of the opinion that for permanent reposition of firmly adherent retro-

verted uteri all the indications can be better met by abdominal section.

When the adhesions have been separated the uterus is in a condition similar to if not identical with one originally non-adherent, and should be treated the same. That is, the fundus should not be immobilized by suturing it to the abdominal wall, but should be brought forward into its normal position by shortening the round ligaments. If, in addition to this, the uterosacral ligaments are shortened, thus drawing the cervix back to its normal position, the indications are accomplished.

But I am unable to subscribe to any method yet proposed of intra-abdominal shortening of these round ligaments. I believe that the more rational method is by opening the inguinal canals and drawing the ligaments forward until the required amount of shortening has been secured. The objections that may be urged to this method are that it necessitates additional wounds and sears; that by reason of the added wounds there is added risk of infection; that it may require longer time than a ventrofixation; and that to the possibility of ventral hernia through the abdominal wound is added the danger of inguinal hernia.

The first objection should have no weight when balanced against the advantages of the operation, inasmuch as with care in closing the wound little or no sear will be left after a few months. The increased danger of infection can be guarded against with a little care at the time of operation and afterward. That the operation may take more time than a ventrofixation is an objection whose force will be lessened with increased experience. The alleged danger from inguinal hernia is one that must be guarded against carefully, though in my own practice I have never seen a case. I think, however, that by exercising care in closing the fascia and wound the danger of subsequent hernia may be practically excluded, or by using the technique recently proposed by Dr. Cleveland whereby the canals are not opened.

The various steps of the operation which I advocate are as follows:

First (the vagina having been thoroughly disinfected), drawing the cervix forward until the sacro-uterine ligaments are made as tense as possible; denudation of vault of the vagina in a direction corresponding to the ligaments to as great an extent as may be necessary; passing a large curved needle from one

end of the denudation to the other through the longitudinal axis of the ligaments, armed with large or chromicized catgut, and leaving the ends of the catgut free (clamped by forceps) to be tied later.

Next, thorough disinfection of the hands; opening the abdominal cavity through one of the recti muscles, care being taken to separate the fibres of the muscle without cutting or tearing, breaking up the adhesions carefully; treating the appendages according to indications, care being taken not to injure the round ligaments; then temporary covering or closure of the abdominal wound. After this open the inguinal canals and draw the round ligaments forward as far as may be necessary, care being taken not to leave them too tense; then careful, accurate closure of the divided fascia by interrupted sutures of sterile chromicized catgut or kangaroo tendon, passed through the ligaments in such a manner as to hold them in close apposition to the under surface of the united edges of the fascia. These sutures should be tied securely and left buried by closing the integument with continuous catgut suture, subcutaneous if preferred.

The position of the uterus should be verified through the abdominal wound before the sutures which fasten the ligaments in the inguinal canals have been tied.

Close the abdominal wound by a continuous catgut suture which unites the peritoneum; by interrupted catgut sutures (chromicized) or by kangaroo tendon, passed through the fascia, by which its edges must be carefully approximated; and, lastly, closing the integument as in the inguinal wounds.

The fibres of the recti muscles may be drawn together by suture or not, as desired; generally they will be brought closely together by the sutures which unite the fascia.

Finally, tie the vaginal sutures and thus draw the cervix back to its normal location.

By this procedure the uterus will be placed in a position as nearly anatomically and physiologically normal as possible.

A CLINICAL CONTRIBUTION TO THE STUDY OF THE LATERAL DISPLACEMENTS OF THE UTERUS.*

BY

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IN a recent text book¹ on gynecology lateral displacements are considered by two whole lines, and in part of a third it is noted that they are occasionally congenital.

Another² simply refers to the definition of lateroflexion and versions and the rare occurrence as such. Still another³ concedes that marked deviations of the uterus from the normal position are almost always attended by symptoms which loudly call for relief. Under pathological deviations are mentioned various displacements, but in vain do I look for any discussion of lateral ones. Mundé,⁷ in his "Minor Surgical Gynecology," devotes a dozen lines to the futile treatment of the displacements under consideration by pessary, but in a paper read before the American Gynecological Society¹² on "The Present Treatment of Uterine Displacements" he does not even mention the subject.

Hart and Barbour⁹ say: "A change to either side is produced by pressure or by traction; when produced by cicatricial contraction these are the most important conditions we have to deal with." Scanzoni¹⁰ speaks of lateral displacements as most frequently of congenital origin and due to a shortening of either ligaments, and of no practical interest. Thomas,¹¹ in the fourth edition of his work, says that "the chief importance is connected with diagnosis. . . . Of all varieties of flexions this is the most likely to require the use of the intrauterine stem." Emmet gives us some points of interest in his laboriously compiled statistics, worked out with so much diligence and labor. They refer mainly to the length of time of menstruation and menstrual pain. In his statistics "it is shown also that the unmarried are less liable to this form of flexure, but the liability is twofold for the sterile, while that for the fruitful woman is

* Read before the American Association of Obstetricians and Gynecologists, September, 1895.

about the same per cent below the average as that for the sterile is above it." Emmet further says (page 333): "Lateral flexures are thought to be formed in after-life as the result of shortening of the broad ligament from inflammation on the side of the flexion, a version having previously existed either forward or backward. I have never met with any evidence conclusive enough to settle the point that this form of flexure was ever congenital. I have become confirmed in the opinion that lateral versions are the consequence of inflammation."

B. S. Schultze¹⁶ treats of lateral displacements of the uterus chiefly as of secondary origin to inflammatory exudates, but in a short sentence¹⁸ he speaks of old latero-positions and versions for which he could not find an acute cause. These cases have stubbornly resisted all treatment. The patients were great sufferers from the severe anemic and hysterical symptoms, which he thought were due to disturbances in the circulation and dragging on the nerves running through the broad ligament. He further says we cannot expect to correct this displacement by mechanical means.

Prof. Schultze is the only writer I could find who has observed that lateral displacements produce symptoms.

In a clinical lecture delivered at the New York Polyclinic by Prof. Mundé¹⁷ the following interesting case is presented; but unfortunately the lecturer does not recognize the disease as causing the symptoms which the patient complains of, nor does he attempt to explain the symptoms:

"Patient is 40 years old and is single; she flows every four weeks for three days. She complains of much pain during menstruation and also of pain on the *right side of the abdomen* and back. She also complains of neuralgic pains all over her head, pain in epigastrium, and of vomiting. She is sent by Prof. Gray to see if there is any cause for her neuralgia in the pelvis.

"Digital examination shows a peculiar and rather uncommon displacement of the uterus, but one which I think has nothing to do with her symptoms. Instead of lying in the normal position, it is tilted with the fundus to the left side and is sharply anteflexed, and the uterus cannot be readily returned to its normal position."

He goes on to say that "the displacement in itself does not give rise to any local or reflex symptoms, and that it is possibly even a congenital condition."

Personally I thought I had reason to believe that congenital lateral displacements were not uncommon, that they gave me a great deal of annoyance and produced many an invalid. I know that ovaries have been removed which were thought to be the seat of the disease, while I had diagnosed the case as one of congenital lateral displacement. As I surmised, the operation did not improve the patient. I have collected from my last year's office case book all cases of lateral displacements, except such as came with large tumors. There were five hundred cases from which the deductions were made, representing my most mature experience and written with no intention of writing up a paper on this subject.

The result was as follows: 14.2 per cent had lateral displacements. Of these lateral displacements 77.46 per cent were married, 22.46 per cent single; of the married ones 38.18 per cent were sterile, 5.4 per cent of all the married ones were married less than a year and were sterile; 63.38 per cent of all cases had some sort of complication, and 57.77 per cent of this number had some bearing on the lateral displacements—thus, there were among them cases of laceration of the cervix, chronic salpingo-ovaritis, subinvolution, and early pregnancies. There were thus 36.62 per cent of the whole number without any apparent cause except a shortened broad or round ligament. Only 26.76 per cent thought that their suffering began from some certain event; the most frequent was parturition. Thirty-eight per cent were displaced to the right and 62 per cent to the left. Of all the cases 38 per cent complained of much pain in the left iliac region—in fact, it was their chief complaint; 28.16 per cent complained of pain in the right iliac region, and it was their chief complaint.

Of all the cases where there was a left lateral displacement, 40.90 per cent complained of pain in the left iliac fossa; of all cases where there was a right lateral displacement, 37.03 per cent complained of pain in the right iliac fossa; 12.67 per cent complained of pain in both iliacs; 22.53 per cent complained of other symptoms, with or without the above pain, such as sterility, general pelvic pain, increased by walking, etc. Of all the cases 70.42 per cent were regular about their menstrual period; 26.76 per cent were irregular, either too often or not often enough; 1.40 per cent each were either pregnant or had reached the menopause; 52.25 per cent had a normal amount

of flow, 15.49 per cent had a subnormal amount of flow, 18.4 had a large flow, and 11.26 a very excessive flow. I want to draw your attention very especially to the fact that in fifteen out of these seventy-one cases, or 21.12 per cent, the principal pain was referred to the iliac region opposite to the side toward which the uterus was displaced.

Eighty-six and sixty-six hundredths per cent of all of these cases were regular about their monthly period; 17.16 per cent were irregular and pregnant each; 40 per cent suffered with a large flow, 33.33 per cent had a normal flow as to the amount, and in 20 per cent the flow was very small; in 7.66 per cent the flow was absent on account of pregnancy; in 13.33 per cent the flow was painful throughout the whole period, in 46.66 per cent the flow was painful on the first day or two, in 40 per cent there was no pain or only a slight pain recorded; 6.66 per cent had pain one day before the flow; 33.33 per cent of the cases were single, with an average age of 24.20 years, while their suffering had lasted 5.60 years, showing a very early period of suffering—in fact, two-thirds of the cases began to suffer with the onset of their menstrual period.

A perusal of their histories shows that they are indeed great sufferers. Several have been in many hands and have been little benefited by any treatment. It is, in fact, this form of complaint that has suggested to me the study presented to you to-day. I know of no cases in their severer forms, excepting malignant diseases, more annoying, and none where less benefit is derived from almost any form of treatment. I have reason to believe that many of the so-called pelvic neuralgias are due to this condition. They are what I would call the congenital cases of lateral displacement. In none was there any history of inflammatory trouble in the broad ligaments. The disease was eminently insidious.

There is the other form of lateral displacement, where the pain is referred to the shorter ligament, which I think is less apt to be congenital since there was nearly always a cause, such as peritonitis, gonorrhea, puerperal fever, an abortion, a fall, and not infrequently marriage was assigned as a cause. In such cases where no cause could be assigned it was found that the disease had not lasted for many years and was evidently acquired. Of course it is possible that the malposition originally gave no cause for complaint, and that some unknown incident became a

factor in producing symptoms. These cases will respond to treatment more readily than the set spoken of before, sometimes by ordinary local treatment, as would be suggested by the cause, at times by the gradual breaking-up of adhesions, and often by operative interference.

There can be no doubt that cases of both category occur where no symptoms at all are produced.

The history of a congenital case is usually what is described in the following:

CASE I.—Miss B., aged 26 years, of a nervous family, and a member of the so-called better class, was seen in consultation at Morristown on March 25th, 1895. She was the picture of a hysterical and cynical woman, and her face seemed to say, "Can you find out what is wrong? Nobody has benefited me as yet." She looked well in the face, except for such paleness as is constant in those who lead an indoor life, and of fair intelligence. The impression of the first moment was that she simulated disease. But as her history was developed I soon recognized how very sick a woman she was. She had suffered to a slight extent with pain in the right iliac region during the earlier days of her menstrual life. She began menstruating at the age of 14 years and was always regular. After a year or two she gave up schooling, on account of her inability to attend regularly and the pain which affected her right side so much.

Her menstrual period became more painful, but in quantity remained the same. At times there was some leucorrhœal discharge. About this time she also found that she was no longer able to partake of the outdoor sports of the young, and that the carriage or the couch was her favored place. She spent her whole menstrual period in bed. More than half of the last two years were spent in the private sanatorium of one of our most excellent surgeons and teachers. There she was treated by dilatation, pessary (stem and otherwise), with the result that she became no better, but continued on her down-hill path. I say this with no spirit of fault-finding, for I know that no one could have done more for her.

During the last three years she had been in bed about constantly, and during this time had taken her meal at the family table very rarely.

She complained of constant pain in the *right iliac fossa*, which of late years had travelled to the left side and the back.

The upright position was absolutely unbearable, with pain in the right iliac. She also complained of much vertex and occipital pain.

A physical examination revealed the uterus slightly enlarged, displaced far to left, and very sensitive to pressure.

The right broad ligament was sensitive, especially when the uterus was dragged to the left, this increasing the tension of the ligament.

Ovaries and tubes were indistinctly felt, owing to the rigidity of the abdominal walls. Otherwise the patient appeared healthy, excepting some slight digestive disturbances.

When such a woman becomes a wife and mother my experience would show that she improved, but if she remained sterile her agonies would be unbearable.

The following was such a case :

CASE II.—Mrs. E. was first seen by me eight years ago, when a young girl, for excessive pain in the right iliac region and a very painful, profuse, and long-continued menstrual flow which was gradually getting worse and had been coming since the first menstruation. This kept her in her room and her bed for the greater part of the month. Being a woman in the fashionable world and fond of society, this difficulty was a source of great worry and anxiety to herself and the family—more so as the patient was an energetic woman and felt herself gradually going toward invalidism. She had been in various hands with little benefit.

A physical examination showed a slightly enlarged uterus, very much displaced to the left side. Ovaries and tubes were normal. The endometrium bled on slight touch. Curettage and dilatation improved her excessive menstrual flow and pain for several years. The pain in the right iliac continued unabated. In a few years she again became worse and a second operation followed with some relief. She was seen in consultation by a prominent New York gynecologist, who advised castration and would not recognize the lateral deviation as a cause. I had counselled against such measure before, and the lady remained in her former condition. While on a visit to Philadelphia she wrote to me for a letter of introduction to a gentleman of high standing and a member of this society. He told her there was nothing wrong and she had better be married. Before that she had refused marriage, since I had told her she

would probably be much worse unless she became a mother. Nearly two years ago she was married, remained sterile, and is now almost a bed-ridden invalid.

CASE III.—The following case is the history of one where the result of marriage was highly satisfactory.

Mrs. D. was seen in March, 1889, complaining of severe pain in the left iliac fossa which hardly enabled her to be about.

She came from a healthy family and attended school until 17. At 15 she first became unwell at regular intervals, with but slight pain. Gradually the pain increased; she soon began to have severe pain in the left iliac region, increased by walking or standing. At 19 she was married. This was six months before I saw her. The uterus was enlarged and close to the right side of the pelvis and hardly movable. She was pregnant three months, and during this time the pain became much worse. After the fifth month the pain almost ceased. Some months after the birth of the child the pain returned to a slighter degree than she had formerly suffered. During the next three years she gave birth to two more children, the pain becoming less with each pregnancy. Her youngest child is now 2 years old and all her children are in perfect health. She considers herself a well woman, though she is still reminded of her ailment when exercising severely.

The non-operative treatment of this form of disease is for the most part very unsatisfactory. I consider the pain in the longer ligament to be due to the extra tension upon this organ when the patient is in the upright position, thus generally getting up a neuralgia. This is at the outset a mechanical condition, and anything to relieve this tension would fulfil the indication. For that reason I push dry oakum tampon between the cervix and iliac on the side of the shorter ligament, keeping it in place by a second or third one, all of which will also elevate the uterus. This should be retained for forty-eight hours. A hot douche with the patient on her knees and elbows, twice daily, is ordered after the removal of the tampon. This will often relieve much of the distress in the milder cases. At times a small Albert Smith pessary with a notch on the side of the shorter ligament will supplant this treatment. Pessaries of other forms at times give some relief. Of course all constricting cloths around the waist should be removed, and, if the patient is at all corpulent, an abdominal support ordered. I believe if there

were any operative means to lengthen the shortened ligament the patient would get well. This is well demonstrated by the fact that these patients get well when they have undergone several successive pregnancies. I have no such means to offer. Whether a shortening of the longer ligament or a ventrofixation would afford any relief I am unable to say.

In two very extreme cases I have resorted to an abdominal section, removing the uterus, tubes, ovaries, and the broad ligaments. I was especially careful to remove the broad ligaments close to the sides of the pelvis. It might be of interest to relate the older case of the two.

CASE IV.—Miss M., 35 years old, was seen on August 7th, 1891. At this time she complained of much and constant pain in the right iliac fossa, with excessive and painful menstrual flow. She had gradually learned, by a combination of cushions placed under the right hip and the iliac region, to be comfortable in bed. When sitting on a chair she was obliged to raise the right leg by keeping the foot on a hassock. For three years she had been unable to leave the second floor of the house except on rare occasions, and for six years had not been at the family dinner table. She favored the right side to such an extent that when she was placed on a table for purpose of examination there was noticed a most marked atrophy of the muscles of the right buttock and thigh.

She began to menstruate at about 15 years and with little difficulty, but soon began to complain of pain in the right iliac. At 20 she was taken with typhoid fever, which made her complaint worse and added profuse and painful menstruation. The pain was especially severe on the fourth day. The bed was her refuge now for the week of the flow. All these symptoms became much worse when she took scarlet fever at the age of 25 years.

At the time of my first visit she was the picture of a chronic invalid, but, when talking on other subjects than her ailments, was a most intelligent and well-versed woman. The great loss of blood at her period accounted for her extraordinary paleness. At the time of menstruation she would occasionally suffer with retention of urine.

She had variously been treated for all sorts of ailments, and at the time of my first visit wore a Graily Hewitt anteflexion pessary, which gave her some relief.

A physical examination showed the uterus in a normally anteverted position, but displaced far to the left. Her ovaries were small and somewhat sensitive. The tubes could not be made out. The endometrium was sensitive, spongy, and bled at the slightest touch.

For her excessive flow she was curetted, with the result of relief of pain and excessive loss of blood. Otherwise she remained as before.

For twenty-seven months she was treated with all the patience I could muster before I suggested the removal of the uterus, tubes, ovaries, and broad ligament. During this time she had undergone a second curettage for excessive flow. Being an intelligent woman, she understood how little I could promise her.

The operation was done by an abdominal section on April 17th, 1894, so as to remove thoroughly both broad ligaments with uterus and ovaries. The following note was received from her on May 13th, 1895, and will better explain her present condition than my own words: "The thought is constantly with me, and I think I never find myself equal to any new effort but the feeling of deep gratitude to God and to you, for the relief from pain and helplessness that has come to me through your great skill and kindness, is with me. I can only say that if I could know I had brought such measure of relief to any one human being as you have afforded me, I should feel it had been worth living for," etc., etc.

Of course she is not robust, but has become the housekeeper of her home now. While she can exercise about the house at will, she is not able as yet to walk any great distance on the streets, on account of pain it produces in the vagina.

A second more recent case, done in December, 1894, is also doing well. She is a Sister of Charity and a teacher, and is taking up her work again at the present time after being an invalid for several years.

I am sorry that I had nothing better to offer for these two cases than extirpation, and I hope that it will not be made a precedent for wholesale operation, but that a more thorough knowledge may be gained of this peculiar displacement and with it a conservative remedy.

1002 BROAD STREET.

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 THE USE OF SPECIAL SOCIETIES.¹

PRESIDENT'S ADDRESS.

 BY

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IN the process of evolution the constant tendency is for everything to change from the simple to the more complicated, or, as Herbert Spencer puts it, "from the homogeneous to the heterogeneous." This being the case in the inanimate as well as in the animate, as this rule holds good in the animal body, so it holds good in the efforts of the brain. Take our old profession, and consider how from the most simple has been brought about the most complicated; where the simple root doctor of a primeval age gathered the leaves and roots and herbs himself from

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the meadows and the hillsides, we have to-day vast corporations gathering medicinal agents from all parts of the globe. On the backs of mules and Indians the valuable cinchona bark is carried hundreds of miles to a railroad where it can be transported to a harbor and thence to every part of the earth. We have agents gathering the kangaroo tail in the wilds of Australia to procure the tendons for use in abdominal surgery; we have others who dig in the bowels of the earth to gather the metal from which our mercuric chloride solution is prepared; we have chemists and druggists and manufacturers in all parts of the civilized world who give their products to aid us in our work.

The primitive surgeon made his own instruments at the blacksmith's forge, while to-day we have instruments made at every medical centre on two continents to enable us to work with precision and rapidity. The work we do to-day could not be performed unaided; we have the assistance of thousands of men in various walks of life.

Formerly the man of genius in the medical profession, as to-day, was the busy man; he had no time to write books. Hence few books were written, and many of these were destroyed and lost to the world as only single copies existed. Every physician gathered his own experience and then died leaving nothing to posterity. With the advent of the greatest impulse to civilization, the printing press, the works of medical men were multiplied a thousand-fold. Every student then had before him the knowledge and the experience gained by his predecessors of many years. We start where they left off, and progress is rapid. But the man of genius was naturally in constant demand; he had not the time to write, as the mechanical work of longhand writing was a most laborious task, and few men wrote until they had retired from the profession and then in their old age could jot down their experience. But this was not fresh; it was old when written. Many facts were forgotten by the authors, and their efforts were naturally imperfect. Then came days of increasing competition—days when the young man wrote who had no experience, but who had plenty of leisure and who had time to look through the literature of the past, and who collected the isolated facts found in many volumes and in many languages and put them together in readable form. This was an improvement, still it was not perfect. What we want is the work of individuals who have the experience and [also the time to record it,

and this experience based upon what they have seen, read, or heard. We wish the works of men who stamp upon their efforts the impress of their individuality.

The time for this has arrived, and with the aid of stenography, the typewriter, and the phonograph a man can, after formulating his views while riding from house to house, dictate what would take him hours to write, and in a few minutes express tersely and clearly the conclusions at which he has arrived and which may be based on the knowledge and the professional experience gathered in a quarter of a century or more. The result is marvellous; we have the experience of the masterminds of the profession from every part of the globe furnished us daily by the medical journals. By the division of labor we have not only isolated cases, and can deduct from hundreds and thousands correct conclusions of the causation, hence of the prophylactic and medicinal or surgical treatment, of morbid conditions.

We have societies which bring together medical men for the purpose of exchanging views. Some think we have too many medical societies in this country, but if we look around I do not think so; I doubt whether we have enough. Considering the extent of our territory, it can be readily seen that we must have many in order to reach the mass of the profession. Many men travel thousands of miles to attend medical societies in order to give with their own lips views based upon their own experience.

Let us continue from the homogeneous to the heterogeneous. Let the profession branch out in every possible direction; let as many societies be formed as possible. Each does some good: it raises up some of the profession to a higher and nobler plane; it prevents many from becoming fossils.

When we consider the work of special societies we readily see how the men whose experience is large in any particular branch must naturally arrive at correct conclusions ultimately. The path may be circuitous and thorny, but finally it will be smooth and straight. Although the general practitioner often in a jocose manner belittles and ridicules the specialist, there is no doubt but that the specialist has done a great deal for the general practitioner. Take the wonderful developments of laryngology, which has enabled the general practitioner to make correct diagnoses and treat many of the diseases of the nose and throat. Take our own Association, the members of which have

made a gynecologist of every general practitioner by devising instruments and simplifying the technique of the operation for lacerated cervix. Every general practitioner is also an obstetrician, as the mechanism of labor and the means of relieving deviations are now so well understood. In the course of time I think that, from the efforts of the specialist, all the complicated questions, the cause, diagnosis, and treatment of various diseases, will be cleared up and it will be easy to diagnose and to treat them; then the occupation of the specialist will be virtually gone. Many diseases will be prevented by the forethought of the general practitioner, and cases which really occur will be easily and readily handled by him. We really move in circles and shall come back to the old family physician. The specialist is simply a link in the chain, and in the course of time, when the various questions interesting us now are cleared up and understood, his usefulness will cease.

The great interest which each of us takes in the Society, the incalculable value which it is to each through the interchange of our views, is not sufficient, it seems to me, to fulfil our mission. The medical press of this country and of Europe takes interest in our proceedings and reports them. Still, it seems to me that if the mass of general practitioners in this country would take a greater interest in our proceedings and participate in them we could accomplish much more. In the line of obstetrics the general practitioner would be greatly benefited, because he is also the obstetrician, and in the department of gynecology and abdominal surgery the points of early diagnosis and early treatment cannot be too often reiterated. It is the general practitioner who sees these cases first; he must diagnose the case and institute the proper treatment in time.

I have seriously wondered whether we could not interest the mass of the profession by having them join us or become life members, they then being entitled to our proceedings for mere nominal annual dues. Or would it not be well if we could select some journal, or establish one ourselves, which would, month after month or week after week, lay before a large mass of the profession of this country the views of the members of this Association on those questions of medical arts and sciences in which we are especially interested? The mere acquisition of knowledge is of no consequence; anybody can acquire it. The great aim and object of knowledge is to make use of it in bet-

tering and raising the condition of your fellow-man. Thus the teacher has the most noble profession. We are teachers now: we teach one another, we teach even a limited number of general practitioners; but we should try to reach the whole of the profession. We must continue year after year to take up some particular question and try to solve it in all its bearings. In my experience members of the profession are weak in diagnosis. Anybody can treat a case, but it often takes genius to diagnose the disease.

The Fellows of this Association may be able nearly always to diagnose appendicitis and gall stones or suppurating kidney, because they have had great experience, but the general practitioner cannot do it. The symptoms are not clear enough, and what we need especially is careful observation of differential symptoms, so that every case can readily be cleared up by the family physician. In other words, we must furnish the general practitioner with an array of signs and symptoms and differential points by which he can diagnose these conditions *early* and beyond any question *correctly*. Our most severe and troublesome cases are those in which the diagnosis has not been made *early enough*, and our death record would be very much lessened if we were not called upon so often to operate on cases as a last resort.

The members of this Association are nearly all the products of evolution; we were once general practitioners, and, as the result of choice or environment, have become obstetricians or gynecologists or abdominal surgeons. We fully appreciate the position of the family physician and the general practitioner. Instead of being antagonistic, we want to help him; we wish to aid him to a correct diagnosis, because the people appreciate and highly value a good diagnostician. The laity understands more and more that this is the basis of the practice of medicine.

What we as specialists can do by limiting ourselves to a particular branch, and what little might we add, is not for ourselves, but is to be the inheritance of the whole profession, which we wish to be elevated, to be perfect, to become accurate and as scientific as is possible in medicine. We desire to raise it in the estimation of the laity, so that it shall not be laughed at and ridiculed in the pulpit or in the court room, but that it shall shine forth as an art, a science, and the noblest of vocations.

POST-CLIMACTERIC ENDOMETRITIS.¹

BY

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Rushville, Indiana.

IN August, 1890, there came into my hands Mrs. B., aged 62, who had been an invalid for many years. Her menstrual life began at 15, and she was perfectly healthy as regards this function. She married at 22 and bore five children. Her last child was born when she was 38 years old, and since that time she has been an invalid. She ceased to menstruate at 48, but the menopause brought her no cure, although there was no special event marking the climacteric. From the date of her last labor to the end of her menstrual life she had menorrhagia and metrorrhagia. During these years she was a sufferer from certain unknown uterine diseases. Her physicians told her that she had ulceration and misplacement. She had been treated by different physicians, but failed to be relieved of her sufferings. Within a year after the cessation of her last menstruation she began to have a discharge from the uterus, at first appearing only at the monthly periods, later on becoming constant. She had had during these years two attacks of hemorrhage of very slight amount. When she came into my hands she was in every way a confirmed invalid, utterly bed-ridden. She had lost considerable in flesh and presented evidences of sepsis; she had no appetite, the bowels were irregular, her pulse over 100, and temperature elevated two and one-half degrees. Her statement is that she has had for twelve years a thin, watery discharge from the uterus having an offensive odor. At times the discharge is slightly pink in color; more frequently, however, it presents the characteristics of a thin, watery pus.

The odor is distinctly fetid, and, while worse at one time than another, is always offensive. She is unable to sit up or stand, on account of pain in the back and lower portion of the abdomen. Upon examination the vagina contained a small quantity of a thin, sanious, muco-purulent liquid of an extremely offensive

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

odor. The uterus is over three inches deep, is retroverted and somewhat fixed in its malposition. There is an old laceration of the cervix. A dull curette brought forth a considerable quantity of pus and blood, and its introduction was attended with considerable pain. After a few days she was placed under an anesthetic and the entire cavity of the uterus thoroughly curetted with a sharp instrument, after previous dilatation with a steel dilator. The cavity was wiped out with carbolic acid, then irrigated, and the vagina tamponed with iodoform gauze. Every precaution was observed in order to do as aseptic an operation as possible. The tissue removed by the scraping revealed pus, blood, and connective-tissue detritus; no sign of decidua or evidence of intrauterine growth. The specimens were submitted to a competent microscopist, who reported absence of the normal epithelium lining the uterine cavity and proliferation of irregular squamous epithelial cells heaped upon each other, which show a granular degeneration going on in them. Occasionally could be found a fibrous stroma enclosing numbers of these cells, and at intervals portions of muscular fibres from the uterine wall. He submitted an opinion that these scrapings presented to him an appearance as if from a chronic inflammation of the endometrium of long standing.

I submit another case, of a lady 67 years of age, whose early history I have been unable to learn, who came under the hands of a medical friend in 1892 for a foul-smelling vaginal discharge. He found upon examination that the discharge arose from wearing a pessary of soft rubber that had become almost encysted within the vagina. Upon its removal and careful cleansing of the parts the patient made a prompt recovery, to return to him one year later to complain that the discharge had again returned. Upon examination he found a thin, purulent, foul-smelling discharge coming from the uterus, which was retroverted and as large as a uterus should be during menstrual life. Under careful treatment, which consisted of uterine washings and topical applications, this patient recovered. Both these patients are now alive and well, one five and the other three years from date of treatment. Neither presents any evidence of recurrence, and both are well so far as this condition is concerned.

There have been reported a few cases of endometritis that have presented themselves in from one to fifteen years after the

menopause. The characteristic feature of all of these cases has been a fetid, watery, semi-purulent discharge. It has received the name of "fetid endometritis of old women." Dr. Skene has described the condition in the *AMERICAN JOURNAL OF OBSTETRICS* under the title of "Senile Endometritis." "Post-climacteric endometritis" has also been suggested as a name which more exactly designates the condition. While the discharge from these patients has a very foul odor, it is not always fetid, hence "fetid endometritis of old women" does not appear applicable to all cases. Again, "senile endometritis" does not appear to be a well-chosen term, for many if not most of them appear soon after the menopause, and the atrophy incident to senility is absent in almost all the cases. "Post-climacteric endometritis" has seemed to me to be the term that more fitly describes the condition than any other. This topic is one that is not presented in any of the text books at my command, and I think the disease is different from the so-called atrophic endometritis that has been described. To my knowledge this subject has never been presented to this Society, and this, with the evident rarity of the condition and scanty literature, is my apology for presenting it for your consideration. The principal point to be observed in this disease is that we have an inflammation, hence truly endometritis, which is not due to degeneration of benign growth after the menopause—although such cases do occur—as well as reawakening of old infectious processes by injury or exposure. It also appears that these cases have features which clearly distinguish them from malignant disease, such as adeno-sarcoma, epithelioma, or carcinoma.

The two cases that have come under my observation have presented symptoms that recall very strikingly those of cancer of the uterus—to wit, vaginal irritation, protracted or constant flow of watery pus, emaciation, and cachectic appearance of the skin—but the length of time that it persists of necessity excludes malignancy. From the knowledge that I can gain upon the subject the symptoms seem to be the following and are undoubtedly those of an inflammation: Most striking of all is the discharge—a watery, semi-purulent fluid which barely stains linen, which is different from ordinary leucorrhea, which is quite profuse at times and not infrequently shows considerable admixture of blood. Again, the discharge will become more purulent in character, will irritate the vagina and vulva

as well as the surrounding skin. A characteristic odor is present, sometimes even more offensive than that of cancer. Occasionally the discharge becomes grumous, at which time the odor is more offensive; not infrequently it will cease for an interval of varying length. When it does appear again it is usually with a sudden gush of thin, sanious pus. Abdominal pain accompanies these cases, also pain in the back, progressive emaciation, and invalidism; furthermore, a slow form of sepsis seems to invade the constitution and the skin takes on a sallow appearance. These are the features presented by almost all the cases.

Dr. Maurange, of Paris, has published three observations of the disease and describes the odor as horribly fetid. In one of his cases he said the features were drawn and the complexion yellowish. Upon local examination, in addition to the above detailed symptoms, the uterus is found to be enlarged—that is, natural atrophy has not taken place; it remains at its normal size or slightly above it. Maurange's cases present the uterine cavity from seven to eight centimetres; in my own case the uterine cavity was three and one-half inches deep. Introduction of the sound is very painful, and upon its removal pus or blood follows. Microscopic study of the tissue removed by curettement enables us to distinguish between this disease and cancer, and also at the same time to establish undoubted evidence of a chronic inflammation of the endometrium. The lesions discovered are certainly those of chronic inflammation—infiltrations of leucocytes, reduplication of cells, areola hyperplasia, granular degeneration. The uterine mucous membrane is swollen and easily detached with a curette.

Although these cases appear at a considerable time after the menopause, there seems in all of them to have been an antecedent history of uterine disease. The pathology in my own case was very clear. This patient for many years had had a retroverted uterus. During the menstrual epoch the copious flow of blood to the parts would carry off the detritus and products of inflammation, so that there was little or no retention within the cavity. After the cessation of the menstruation the contents of the uterus, retained by its abnormal posture, would become decomposed and continue an inflammation already established. Furthermore, the irritation kept up by such an inflammation would cause a certain amount of swelling.

While, of course, the blood supply to the part would be considerably abridged after the menopause, and while the susceptibility to invasions of septic germs would be much less, yet the irritation constantly going on is sufficient to produce considerable swelling of the organ until it would be at least as large as the normal uterus. These patients exhibit evidences of sepsis. There are occasional rigors and not infrequently night sweats, there is almost constantly an exalted temperature, all of which are unquestionably due to the absorption of septic bacteria by the lymphatics of the uterus. The cause of the condition, to my mind, lies in antecedent inflammation primarily and secondary misplacement. The presence of adhesions fixing the uterus in malposition also adds to the gravity of the condition, because in this position the natural drainage of the organ is effectually prevented. I have not yet been able to ascertain from the reports of cases whether this disease has ever been observed in the normally atrophied uterus properly poised. I doubt very much if such could ever be the case, and think that the essential condition must be retrodisplacement and retention. In the matter of diagnosis certain difficulties may present themselves. One of the French cases was on the table, under diagnosis of malignancy, for vaginal hysterectomy, when for some reason temporary curettement was done instead, with resulting perfect cure and disappearance of all the symptoms which had spoken for cancer. Cancerous disease of the body of the uterus is much less frequent than that of the cervix, and, while adenoma is uncommon, the characteristic feature of all those cases is hemorrhage. In "post-climacteric endometritis," however, the discharge is peculiarly free from blood; sometimes there will be evidences of admixture of blood in the discharge, but a hemorrhage is almost entirely wanting as a symptom in these cases. Then again fixation: while it appears that a certain amount of fixation is present, yet it is never so decided as in that of advanced malignancy. And last and most important of all is the length of time these cases have continued. It has been presented in argument that these symptoms detailed under the head of "fetid endometritis" are only the beginning or prodromata of cancer, and the condition untreated soon develops malignancy. This does not appear, for the condition of my own case had continued for twelve years, which is certainly too lengthy a period for incipency of malignant disease.

In addition to the clinical history and the diagnostic points already laid down, we have differentiation that will come from microscopic study of the débris of curettement. While there is infiltration of cells and reduplication and crowding, there is at the same time evidence of fatty degeneration and inflammation, with no attempt at arrangement such as is found in the curetted débris of adenoma or carcinoma. While the microscope alone in many instances will throw little in the scale of evidences that is of value, yet, taken in consideration of the history, I think it is possible for the accomplished microscopist to decide in these cases as to the positive absence of malignant disease. The treatment of the different forms of "post-climacteric endometritis" seems to be rational and absolutely successful. No case has resisted thorough curettement and proper after-treatment. After observing all proper precautions as to preparation of patient and surroundings, a careful dilatation should be made with a steel dilator. The ease with which the dilatation can be made in one of these cases is due to the tenderness and lowered vitality of the organ, hence should be done with great caution for fear of producing laceration. Then the curettement should be done thoroughly, and it is easy because the inflamed surface is easily removed. The condition of the uterine body is such that perforation can easily occur from careless usage. Following this, thorough wiping with dry iodoform gauze, after which a test should be made with peroxide of hydrogen in order to see if there is further sign of pus, after which the organ should be irrigated with a bichloride solution and then wiped as dry as possible with rough gauze. Drainage by strands of silkworm gut seems to answer the purpose better than gauze packing. The after-treatment consists in daily irrigation of the uterus with peroxide solution and wiping with gauze until the uterus returns to its normal atrophied size. Under this treatment I have presented two cases that have shown no recurrence after five years and three years respectively, and the symptoms of sepsis, pain, and invalidism at once disappear under this method. Vaginal hysterectomy is not needed, although it would furnish a very prompt solution of the question before us. These patients, however, as a rule are pretty well advanced in years and are broken down from carrying a local depot of pus and septic infection; consequently a major operation is not desirable if it can be avoided.

PNEUMO-PERITONEUM.

BY

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To the abdominal surgeon gas in the peritoneum is a matter of a great deal of interest. Tympanites may be defined as the distention of the abdomen that results from excessive accumulation of gas within its cavity.

Pneumo-peritoneum may be classified as follows :

1. Tympanites intra intestina.

2. Tympanites extra intestina.

A. Traumatic.

a. From without.

b. From within.

B. Non-traumatic or spontaneous.

a. Without liquid, gas odorless.

b. Ascites, and gas odorless or fetid.

c. Pus and fetid gas.

3. Tympanites intra et extra intestina.

1. **TYPANITES INTRA INTESTINA.**—This variety is frequently met with and does not need to take up much of our time. The gas collects in the interior of the intestines as a consequence of inflammation of the intestines themselves or of their serous coat; as a consequence of obstruction of the lumen of the bowel by a growth in its interior or compression from without; as a consequence of the administration of such poisons as atropine and the accompanying paralysis of the muscular wall of the intestines. I have seen one marked instance of intestinal inflation as the result of the administration of a poisonous but not fatal dose of atropine. The abdominal surgeon dreads to see distention, as it indicates to him the onset of an attack of peritonitis. In such cases it is generally supposed to occur as a consequence of what is called a septic paresis; the bowels are thus deprived of their peristaltic action through some influence brought to bear on the nerve supply by the poisoned blood. This poison, whatever its nature may be, has an effect on the intestines similar to that of atropine administered in poisonous

doses. I believe, however, that the filling of the intestines with gas is not solely due to the loss of power of the muscular wall, but that there is another factor playing an important part in the collection of this gas. In these cases gas forms more rapidly than in the healthy individual. It not only collects more readily, but it forms more rapidly. A decomposition or abnormal chemical alteration of the intra-intestinal contents must be permitted to allow of the excessive formation of this gas. This condition may therefore be considered as a combination of septic intestinal paresis and septic intestinal indigestion.

2. *TYMPANITES EXTRA INTESTINA*.—This second variety I have divided into traumatic and non-traumatic or spontaneous.

A. *Traumatic*.—The traumatic cases I have divided into those in which the injury comes from without and air is permitted to enter the abdomen through the wound, and those in which the traumatism is from within and gas is allowed to pass from intestine or lungs into the peritoneal cavity.

Of the former variety I have found one case. It appears to be well demonstrated by the author as a consequence of the entrance of air into the peritoneal cavity through a stab wound; but his opinion is based on physical signs and not on actual post-mortem examination.

Of the second variety of traumatic tympanites there are several cases on record. Gas may escape from the intestines or stomach as a consequence of the perforation of round ulcers, of dysenteric ulcers, typhoid ulcers, secondary ulcers due to stricture, the ulcer of the cecum accompanying cecitis and appendicitis, from perforation of the vermiform appendix, from perforation the result of malignant sarcomatous ulcers, from rupture of the intestines from a blow on the abdomen. The following case is one of interest in this connection:

A. W., æt. 10, was seized with sudden, sharp pain in the right iliac region; the pain became general and vomiting set in. The child had not been well for one week previous to this attack. She had not had any similar attack. Dr. Rowan, her physician, found her with elevated pulse and temperature, and diagnosed acute general peritonitis. Her father died of consumption, mother still living. Two weeks after the commencement of the illness I saw her in consultation with Dr. Rowan. The abdomen was enormously distended, tympanitic over the surface, dull in the flanks; fluctuation of fluid free in the peritoneal

cavity could be made out. The child looked very ill, as if in the last stages of typhoid fever. Pulse 170, respiration 30, temperature 101°. A flatus tube was used in the intestine for the purpose of relieving what was supposed to be intestinal flatus, but no flatus passed. I concluded at the first visit that operation could do no good; seeing her again next day I decided to open the abdomen.

Operation.—Incision in the median line. On incising the peritoneum a large quantity of horribly offensive gas and pus forced its way out like soda water out of a soda-water siphon. The abdomen began to go down as a balloon does when it is pricked. A two-quart pailful of pus was allowed to run out. Abdomen was then washed out with several gallons of water. There was an enormous aggregation of purulent lymph; when these "chunks" of lymph came out they looked like sponges that had been dabbled in pus. The interior of the abdomen looked like a piece of raw beef. Intestines were pressed back toward the spine; they were not distended with gas. I continued the washing until I was afraid the patient would die on the table; a drainage tube was inserted. During the subsequent drainage of the tube little clots of blood came out from time to time. The milk, taken by the mouth, and fecal matter came out through the tube. Patient lived for two weeks after the operation, and, according to my opinion, died of starvation.

Post-mortem.—I made the post-mortem examination, assisted by Dr. Rowan. We found a perforation of the small intestine, and this perforation was situated near the bottom of the drainage-tube track. The rest of the parietal peritoneum was firmly fixed to the intestines and omentum, so that in reality no peritoneal cavity existed. The changes that had taken place were wonderful. No pus was to be found anywhere; the only two defects seemed to be obliteration of the peritoneal cavity and a fistulous opening in the small intestine leading to the drainage-tube track and from this to the external world. We concluded that there had been an abscess in one of the mesenteric glands that had ruptured into the peritoneal cavity, and that had subsequently caused a perforation of the necrotic intestine supplied by the blood vessels passing through that portion of the mesentery that had contained the suppurating gland. We believed this perforation to have taken place subsequent to operation, as there was no fecal matter discovered at that time and none was

noticed until several days after the insertion of the drainage tube. This explained the escape through the drainage tube of the milk swallowed by the child.

B. *Spontaneous*.—It is with the spontaneous variety, however, that I wish particularly to deal. The non-traumatic or spontaneous tympanites extra intestina I have classified in three varieties: the first, in which no liquid is to be found and in which the gas is odorless; the second, in which liquid is present and the gas may or may not be fetid; the third, in which pus is found and the gas is very fetid. I have met with one of the first and one case of the third variety. My friend Dr. C. J. Hastings, with whom I saw the case of spontaneous, non-traumatic extra-intestinal tympanites, has furnished me with the following report:

“Mrs. P., æt. 23, was confined on the 25th of March, 1895, with her first child. The labor was normal, lasted about six hours, and was conducted under strict antiseptic precautions, except that no ante-partum douche was given. On the night of her confinement her husband was ill with a severe attack of *la grippe*. Twenty-four hours after her confinement she was attacked with what seemed to be a severe attack of *la grippe*. The temperature reached 104° and the pulse 95. She had severe headache and severe pain all through the body; this was followed by suppression of the lochial discharge, which soon became offensive. Next day there was marked tenderness over the left ovary, with occasional shooting pains. Twenty-four hours later there was tenderness over the uterus and she had all the symptoms of general pelvic inflammation. Intrauterine irrigations of bichloride of mercury were used and antipyretics administered. There being no improvement in the patient on the twelfth day, Dr. Ross saw her with me. We put her on the table, thoroughly irrigated the uterus and packed it with iodoform gauze. Notwithstanding this the temperature and pulse continued high, and next day what seemed to be general peritonitis set in. There was extreme distention and tenderness all over the abdomen. The patient could not bear to be touched even with the tips of the fingers. On the thirteenth day the symptoms became aggravated, temperature reached 105.2°, pulse 170. Patient looked very anxious and had a pinched expression of countenance, and became cyanosed; large drops of perspiration stood out over the forehead. Everything was rejected from

the stomach. By night she had slightly improved. Septic diarrhea now set in and there was a good deal of flatus passed from the bowels. A little champagne remained on the stomach. Next day the temperature had dropped to 102° and pulse to 140. For five days there was gradual improvement; temperature became almost normal and pulse came down to 100. Suddenly, however, distention became very marked.

"Dr. Ross saw the case again with me. The abdomen was extremely tympanitic; a doughy feeling could be felt on one side, and this was supposed at first to indicate a commencing phlegmon. The distention increased to such an extent that we felt satisfied the gas could not be in the intestines without producing rupture of the intestinal wall at some point. We decided to open the abdomen for the purpose of evacuating its contents, should there be gas and pus present. The skin over the abdomen very much resembled the wall of a bladder inflated with air and resounded like the head of a drum when percussed. The abdominal parietes were very thin. The measurements of the abdomen were as follows: from the anterior superior spine on one side to that on the other, twenty-nine inches; from the tip of the ensiform cartilage to the pubes, twenty-three inches. The ordinary measurements are about twelve inches from spine to spine, and ten inches from the tip of the ensiform to the pubes. Three days after the operation the patient succumbed, apparently from exhaustion from the persistent retching and vomiting. Just before death the abdomen was almost fully distended again."

Such are the notes given me by Dr. Hastings. There were two or three points to which my attention was attracted during my visits to the patient. I saw her in consultation three times. On the first visit there was something different from the ordinary case of puerperal septicemia; the abdomen was more tender to the touch than it usually is in these cases; the face did not indicate acute general peritonitis. At the second visit the respiration was very rapid; I have never seen the respiration so rapid except just at the fatal termination of a case of acute general peritonitis. At this visit I concluded that the gas could not be in the intestinal cavity. I have never seen such enormous distention of the abdominal parietes. Feeling satisfied that the gas was not in the intestines, I advised exploratory operation, thinking that perhaps the case would resemble the case of the little girl just reported.

Operation.—On Sunday, April 28th, 1895, the abdomen was carefully prepared, every antiseptic and aseptic precaution being taken. Patient was placed on the table and chloroform administered; the chloroform administration was difficult. I made a small opening an inch long and very soon reached the peritoneum owing to the thinness of the abdominal wall. I made a little puncture with a knife into the peritoneum and the gas blew out with a hissing sound; it was sweet in odor and not indicative of any decomposition. I then enlarged the opening in the peritoneum, when the abdominal walls collapsed. The intestines were then carefully examined; they were pressed to the back of the abdomen and empty, and appeared more reddened than usual. There was no trace of accumulation of gas in them and they did not look inflamed. They were not adherent to the abdominal walls or to themselves. There was no evidence of peritonitis; there was no pus present nor any collection of serous fluid. The very dry and desiccated appearance of the peritoneum reported by some authors was not noticed in this case. The wound was dressed and a firm bandage applied. No drainage tube was inserted.

Of the second variety, in which ascites and gas are present, I have never seen a case. Of the third classification of the non-traumatic variety, that in which fetid gas is present with pus, I have met with one case within the last week.

Mrs. K., æt. 26, was admitted into one of my wards at the Toronto General Hospital on September 11th, 1895. The abdomen was enormously distended, tongue red and sore, sordes on the lips, hectic flush on the cheeks. From her appearance the patient was evidently in the last stages of septicemia or else suffering from tubercular disease. The case looked like a typical case of tubercular peritonitis in an advanced stage. Fluid was found free in the abdomen, but the tympanitic note over the surface satisfied me that the mesentery must be very long to permit the intestine to float so far away from the spine, or else that there was gas free in the peritoneal cavity. Splenic dulness was absent; liver dulness was very much diminished, almost entirely absent. I concluded, therefore, that the case was one of tympanites extra intestina with a collection of either purulent or ascitic fluid.

Operation September 13th, 1895.—In the presence of several physicians and students I opened the abdomen in the median

line. As soon as the peritoneum was incised gas hissed out of the opening ; a little pressure soon brought out pus. The gas was horribly offensive ; the pus was of a yellowish brown color. Something bulged out of the opening that looked like gangrenous intestine ; we all thought at first that it was intestine. I found it adherent to the peritoneum and could make no road through it except in one direction. I reached up as far as possible in this direction with the finger and was puzzled to understand the exact condition present. At last I made up my mind that the gangrenous mass must be omentum and not intestine. On closer inspection I satisfied myself on this point and made an incision through the mass, when a sudden gush of pus demonstrated the exact nature of the obstruction. The omentum was adherent at its edges and hung in the fluid, having a large bulk of fluid beneath it and a small quantity of fluid on its surface. The space over the omentum, however, communicated with the space beneath it. My fingers were now passed into the abdominal cavity. The intestines were found pressed upward and backward and not distended with gas. The interior of the cavity felt like a piece of rough grained leather. I washed out with several gallons of water ; the water used in the washing filled three large foot baths. The condition found was exactly similar to that present in the case of traumatic pneumoperitoneum reported above, except the absence of intestinal perforation. A drainage tube was inserted and the abdomen washed out with a solution of peroxide of hydrogen after the first twenty-four hours had elapsed.¹

3. TYMPANITES INTRA ET EXTRA INTESTINA.—This variety is so intermingled with the other that it is of no particular interest. The fact that air is found in the intestines, as well as outside of the intestines in the peritoneal cavity, is not likely to affect the etiology or the treatment of the disease.

Boninsegna, after relating a case that he supposed was one of pneumoperitoneum, though the patient recovered and no post-

¹ After writing this paper, and two weeks after operation, a large slough came away through the unhealed abdominal incision. A week later, or three weeks after the operation, the whole omentum sloughed off and came away through the opening during irrigation. The patient is still living ; the wound is almost healed ; she is gaining flesh. The septic, inflamed condition of the tongue has disappeared. Her temperature has become normal and her pulse dropped below 100. There is every prospect that she will make a good recovery.

mortem was made, had occasion to look up the literature of this subject. He says that Hippocrates says that he observed a collection of air in the uterus; and Giorgia found vesicles, closed and filled with gas, among the intestinal coils of umbilical hernia. Verne described a case of general emphysema following serious acute disease that terminated fatally. In this case the skin and the entire body were swollen during life. After death the general swelling of the body rapidly disappeared. No fluid ran away, but there was a noticeable and intense odor present. Morgagni described another similar case in which the swelling of the body rapidly developed in a three-year-old child who had been anointed by a woman with a very coarse and irritating ointment for the cure of scabies. All the skin was greatly swollen, elastic, and tense, with no pitting on pressure. At the post-mortem examination the swelling disappeared without the exit of a single drop of fluid. Graves wrote years ago and stated that there was a kind of pneumothorax in which the air that was found in the pleural cavity did not proceed from an external wound, or from any fistulous communication with the lungs or bronchi, or from any decomposition of liquids poured out into the pleural cavity as a consequence of pleurisy, but that proceeded from a secretion of air from the pleura itself, the effect of a subacute inflammation of that membrane.

Away back in 1755 a wonderfully accurate dissertation on this subject was written by G. G. Adolphe, entitled "*De Rarissimis et Gravissimis Tympanitis extra Intestina Speciebus.*" The author states that, because of the rarity with which gas is found in the peritoneum alone, and the difficulty met with in attempting to account for this presence of air in the peritoneal cavity in the absence of any erosion of the intestines, this variety has been called into dispute. He considers that the gases are the result of putrefactive change, but makes no mention, however, of the form in which the gas is not fetid and in which it is not likely to be the result of putrefactive change. He met with a case himself, of which he speaks. At the autopsy fetid gas escaped in great quantity from the peritoneal cavity; the intestines were found to be intact. There was a four months' fetus in utero. The patient had been treated for excessive dilatation of the abdomen and died suddenly after a few days. It is probable that in his case either serum or pus was present, as, in summing up, he says that he does not believe that the condition

can exist when there is no injury to the intestines, unless there is a concomitant ascites or extravasation of lymph.

Etiology.—It is now fitting that we should turn our attention to the etiology of these curious conditions. Some of the conditions can be explained and some of them cannot. For many years the formation of gas in the peritoneum before death was disputed; this occurred before celiotomy was undertaken as an exploratory measure. As the inside of the abdomen was not investigated before death, it was naturally considered that the gas found post mortem was the result of the process of post-mortem putrefaction. But it is now a well-established fact that gas is frequently found confined in various parts of the body as an accompaniment of the formation of pus. Sacculated pneumoperitoneum is frequently found in conjunction with localized appendiceal abscesses. It is common to find air in such abscesses even when no perforation of the bowel can be discovered. To find air with pus collected in the tunica vaginalis testis must prove that this air does not necessarily come from the intestines. As in the appendiceal abscess, so in the tympanites extra intestinalis with pus, this gas may escape from the intestine by an almost imperceptible opening.

Since the introduction of pneumatic tires it has been frequently demonstrated that air will escape through an opening that can only be detected by submersion of the inflated rubber. It is only by means of such a crucial test that perforation of the intestine can be excluded in the cases of which we are speaking. But, in view of the report of Prof. Welch, I for one feel satisfied that the gas found in these cases does not escape from the intestine.

In 1892 Prof. Welch published a report regarding a gas-producing bacillus (*bacillus aërogenes capsulatus*)—a bacillus capable of rapid development in the blood vessels after death. From the cultures made and the experiments carried out one must believe that such a bacillus exists. The experiments were very interesting. Fluid was originally obtained from a case in which there was a rapid formation of air beneath the skin after death. From this cultures were made, and fluid laden with these cultures was injected into rabbits; these rabbits were killed either at once or within a few hours after the injection. Within twenty-four hours after death many of them became distended; the flesh was found to crepitate, the blood vessels were found

full of air globules. Control experiments were performed at the same time. All of the rabbits that were inoculated and allowed to live recovered, with one exception. In this one case the rabbit died twenty-one hours after the inoculation. The body was found to be much swollen, the abdomen was distended, emphysematous crackling was felt over the abdominal parietes and also over the lower part of the thorax. Gas escaped freely from the peritoneal cavity. The uterus was found to contain two embryos that were evidently dead when the injection was made, and four that were alive at that time. Prof. Welch supposes that the bacilli were propagated in the dead fetal structures. The bacillus develops in the absence of oxygen, and, from experiments made, it is found to develop only in the presence of dead material. The gas found in many of these rabbits in the peritoneal cavity had the odor peculiar to stale glue, but it was not offensive. May not the production of gas found during life, in the case of the patient who had been recently delivered, have been due to the presence of this bacillus or some similar organism? If such gas, that is not offensive and that is not an accompaniment of pus formation, may form in the abdomen of a rabbit as a consequence of the development of the bacillus *aërogenes capsulatus* in the presence of the two dead intrauterine embryos, may it not occur as a consequence of the development of the bacillus *aërogenes capsulatus* in the presence of a necrotic condition of uterine tissue at the placental site?

As you will see by reference to the tables, I have only been able to find records of five cases of spontaneous or non-traumatic tympanites extra intestina in which no fluid was present and in which the gas was odorless.

Godlee, whose cases will be found in the appended table, thinks the gas is allowed to escape from the intestines into the peritoneal cavity as a consequence of exosmosis. Adolphe thinks that the gas is liberated from lymph that is poured out into the peritoneal cavity; the lymph is absorbed by the vessels, but the air cannot disappear in the same manner, as, from mechanical reasons, it is incapable of entering the capillaries. This is a theory that requires careful consideration.

Brown is of the opinion that carbonic acid escapes through the delicate walls of the peritoneal capillaries; this he thinks is especially liable to occur in cases of imperfect aëration of the blood. In the case recorded by Brown the patient was suffering

TRAUMATIC.

Physician.	Male or female.	Age.	Circumstances of illness.	Physical signs.
Thomas..	Male. ...	22.....	Stab wound right side of abdomen; healed in four days. Abdomen distended in epigastric region.	Liver dulness diminished; left lobe could not be percussed. Spleen dulness normal. Increased tympanic sound from right lung down. Return of liver dulness after some days.

From

Schuh	Male.....	16.....	Traumatic gangrene, enteric fever, perforation of intestines.	Great abdominal distention....
Ross.....	Female.	13....	Symptoms of general peritonitis for two weeks. Sudden onset. Tubercular history.	Fluid in peritoneal cavity. Tympanic resonance on surfaces of fluid. Enormous distention of abdomen.

SPONTANEOUS OR NON-TRAUMATIC.

G. Brown.	Male.....	21.....	Had been ill with typhoid fever; double pneumonia. In the third week tympanites; at first evidently intra-intestinal, later extra-intestinal. Respiration embarrassed, 50 per minute.	Extreme distention of abdomen. Hepatic and splenic dulness masked. Apex of heart displaced upward and outward.
Trites.....	Not given.	Not given.	Had cough. Emaciated. Expecterated bloody mucus. Chest dull on percussion. Sensation of tightness and pressure in chest.	Great abdominal distention. Tympanitic twenty-four hours before death.
Estevenet.	Male....	52.....	Had had apoplexy and bladder trouble; became indisposed. Abdomen much enlarged and slightly painful. Respiration embarrassed, pulse somewhat accelerated. Visage altered, but not that of acute general peritonitis. Vomiting.	Abdomen reverberated like a drum in its entire extent. Abdomen looked like a leather bag inflated under strong pressure. Sternum elevated, and chin sunk so that it appeared between the shoulders in consequence of elevation of entire thorax.
Baldinger. =	Not given.	Not given.	.....	Abdomen distended like the walls of a drum.
Ross.....	Female..	23....	Puerperal inflammation. Vomiting. Patient cyanosed. Embarrassed respiration. Septic diarrhea. Rapid pulse.	Enormous distention of abdomen. Abdomen reverberated like a drum. Skin of abdomen resembled bladder inflated with air. Liver dulness not made out.

From without.

Measurements of abdomen.	Operation.	Post-mortem.	Result.	Remarks.
.....	No	No	Recovery. ...	Patient lived. Abdominal distention disappeared. Case supposed to be one of entrance of air into peritoneal cavity as result of traumatism.

within.

.....	Yes.....	Yes.....	.....	Abdomen punctured and gas removed from peritoneal cavity. Became again distended before death. Pus and fetid gas found in peritoneum at post-mortem.
.....	Yes.....	Yes.....	Died from starvation in two weeks.	At operation pus and gas flew out like soda water under pressure. About three quarts of pus removed. Washed out and drained at post-mortem. Peritoneal cavity found completely obliterated by adhesions. No pus. Opening from duodenum to drainage tube direct, through which food escaped.

ODORLESS GAS. NO FLUID.

.....	Perforation with trocar.	No	Death thirty-six hours after operation.	Large quantity of odorless gas escaped. No pus or intestinal contents with gas; hence excluded perforation of intestines.
.....	No	Yes..	.....	Pleuritic effusion. Stenosis of mitral valve. Large quantity of odorless gas in the peritoneum, outside intestines. Stomach and intestines found intact.
Circumference at level of umbilicus fifty-one inches; from symphysis pubis to tip of ensiform cartilage, twenty-two inches.	No	Yes.....	.....	Purgatives given with no effect. Gas escaped with noise on opening the peritoneum. Abdominal walls collapsed. Gas odorless. No perforation of stomach or intestines, or abrasure found. Peritoneum had a desiccated appearance. No fluid, no false membrane. None of ordinary products of inflammation. Intestines reddened.
.....	.....	Yes.....	.....	No effusion of liquid. No perforation of intestines. Odorless gas.
Anterior superior spine of ilium to spine of ilium on opposite side, twenty-nine inches; tip of ensiform cartilage to pubes, twenty-three inches.	Yes	Yes.....	Death three days after operation.	Made small exploratory opening. Odorless gas escaped with a hissing sound. Abdominal wall collapsed. No signs of peritonitis. No pus or fluid. Intestines pressed back to spine; appeared redder than usual. No gas in intestines.

SPONTANEOUS. GAS

Physician.	Male or female.	Age.	Circumstances of illness.	Physical signs.
Godlee....	Not given.	72....	Obstruction of bowels.....	Great distention of abdomen. Liver dulness almost absent.
Godlee....	Male.	46....	Had had syphilis and dysentery; now has phthisis and advanced albuminoid changes.	Liver dulness absent, except on deep percussion.
Godlee ..	Female ..	61.	Intestinal obstruction by tumor. Severe pain, constant vomiting.	Abdominal distention.

SPONTANEOUS. FETID GAS.

Ross ...	Female..	26. ...	.....	Enormous distention of abdomen. Absence of splenic dulness; hepatic dulness not distinctly made out. Fluctuation. Tympanitic note in epigastric and umbilical regions. Dulness in loins and rest of abdomen.
Breslau. .	Female..	28. ...	Recently confined. Discharged. Returned with jaundice, cough at night. No pain. Red tongue. Pulse and temperature elevated. Dyspnea	Abdominal distention. Tympanites in umbilical, epigastric, hypochondriac regions. Fluctuation lower half of abdomen. Abdomen barrel-shaped.
Levey	Male.	25.	Feeble constitution. Continued diarrhea. Gradual enlargement of abdomen. Embarrassed respiration.	Enormous distention of abdomen.
Marque. .	Female ..	Not given.	Twin pregnancy; one child and membranes delivered, other left behind for three days. Putrefaction set in; putrid gas expelled from uterus.	Abdomen greatly distended.....

AIR VESICLES

Bury.....	Male. ...	64.	Melanotic cancer of esophagus.
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NOTE.—A case related by Boninsegna has not been included in the table, owing to the fact that there was no actual demonstration of the condition present. There was simply a surmise that it was a case of pneumo-peritoneum, and the patient recovered.

WITH ASCITIC FLUID.

Measurements of abdomen.	Operation.	Post-mortem.	Result.	Remarks.
.....	Colotomy.	Yes.....	Died in ten weeks.	At operation peritoneum found distended with gas. A little colored fluid escaped. No perforation of intestines found at autopsy.
.....	No.....	Yes ..	.....	At post-mortem gas found in the peritoneal cavity, with ascitic fluid.
.....	Colotomy.	Yes.....	Death in twenty-four hours.	At operation peritoneal cavity found distended with gas. This was allowed to escape. Colon was then found and opened. At post-mortem no perforation found. Evidence of old peritonitis and a recent general peritonitis. Old ulcers of the cecum, but no opening through bowel found.

PURULENT FLUID.

.....	Yes.....	.....	Still living five weeks after operation. Omentum sloughed off and came through wound.	Abdomen opened. Large quantity of gas and pus found in peritoneal cavity. Gas fetid. Placed in this class, as patient is still living and ultimate result not yet known.
.....	Exploratory puncture.	Yes.....	Death.....	Pus found at exploratory puncture. Abdomen then suddenly distended, as though blown up by air. At post-mortem offensive gas and pus found in peritoneal cavity.
.....	No.	Yes.....	.....	Fetid gas and greenish fluid found in peritoneum. Intestines somewhat distended by gas. Evidences of peritonitis. No erosion or laceration to be found.
.....	No.....	Yes.....	.....	Intestines distended. Fetid gas free in peritoneal cavity.

BENEATH PERITONEUM.

.....	No.....	Yes	<i>Post-mortem.</i> —Peritoneum was studded with air vesicles—especially the diaphragmatic portion; here they were larger and most numerous (as large as a cherry). Gas odorless. No signs of decomposition. No opening detected. Stomach and intestines intact. ¹
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¹ One would think in this case the air was forced down, during the act of swallowing, through some imperceptible opening beneath the peritoneum. Reported as a curiosity.

from double pneumonia following typhoid fever. It is true that in all these cases there is embarrassed respiration and, as a consequence of the embarrassed respiration, imperfect oxidation of the blood. But I believe the embarrassed respiration occurs as a consequence of distention of the abdomen and upward pressure of the diaphragm, and that, therefore, this imperfect aëration of the blood is a consequence of the pneumo-peritoneum and not a cause of it.

Piorry, in a memoir upon the subject of the collection of gas in the peritoneal cavity, concludes that many cases occur in practice in which an opening or perforation of the intestines results from the ulceration of one or more of Peyer's patches, and in which the opening is so small that after death it is almost imperceptible.

Diagnosis.—There is symmetrical distention of the abdomen, absence of hepatic and splenic dulness. If the liver is adherent to the abdominal wall hepatic dulness may be present in ordinary tympanites intra intestina. The liver, spleen, and diaphragm are pushed upward, but lie next to the ribs and give an area of dulness.

Thomas, of Leipzig, in summing up an article on this subject, says that a tympanitic percussion sound is found over the liver when there is no respiratory disturbance in the following cases: (1) situs transversus viscerum; (2) decrease in the size of the liver; (3) in cases in which the liver is drawn up and the diaphragm rises very high; (4) in the presence of a collection of gas between the liver and the abdominal wall, free in the peritoneal cavity.

In cases of tympanites due to the formation of gas in the intestines irregular prominences can frequently be made out. These prominences are especially frequent in cases of intestinal obstruction. In cases of tympanites extra intestina no such prominences will be noticed. The abdomen is blown out like a balloon and, as I have said before, regularly distended. Tume-faction of the abdomen is great, much greater than that seen in those cases of tympanites in which the gas is in the interior of the intestine. If gas be present both in the intestine and in the peritoneal cavity outside of the intestine, it will be difficult, if not impossible, to diagnose the exact condition without exploring the abdominal cavity.

In all cases of pneumo-peritoneum there is a notable tension,

a drum-like tension, and a resistance of the abdominal walls. Resistance is increased, the elasticity of the walls is increased; there is absolute immobility of the abdomen during respiration, and a general elevation of the thorax. One author says that this condition is sometimes so exaggerated as to make it appear as if the head were sunk between the shoulders. Embarrassed respiration is met with as a consequence of the pressure on the under surface of the diaphragm; the tympanitic note is most marked and it has a high tone; resonance is greatly increased; the note is equally distinct and peculiar in its tone over the whole of the abdominal surface. These facts have been well pointed out by Bamberger.

The percussion note will vary according as the pneumo- toneum is present with or without intraperitoneal fluid. If fluid is present a tympanitic note will be found over the epigastric, umbilical, and hypochondriac areas, and a dull note will be found in the hypogastric region and in the loins. It is said that succussion or splashing sounds can occasionally be heard; I have been unable to discover them.

Treatment.—In 1871 Piorry stated that simple puncture of the peritoneal cavity to remove gas, even in the presence of great danger of asphyxia, is not to be regarded with favor unless an accurate diagnosis of the exact condition present in the interior of the peritoneal cavity can be made. This is sound surgical doctrine, but we have passed from the days of puncture to those of exploration. Exploration by means of a knife and the finger is free from the objection that obtains in the case of a stab in the dark by a trocar. In all of these cases, I believe, an exploratory celiotomy should be performed; even if unaccompanied by any brilliant results the patients will be relieved.

After the removal of the pressure on the diaphragm the breathing improves. Piorry mentions a case of a young man who suffered from typhoid perforation of the intestine. There was great distention of the abdomen. The abdominal wall was punctured and gas evacuated. This was done several times at intervals of two or three days. The patient survived almost a month. It must be remembered that the condition itself is only the symptom of a grave systemic disturbance and that the relief of the symptom will not cure the systemic disturbance.

It has been stated by one operator that it is necessary in puncturing such cases to allow the gas to escape very gradually. It

has been stated that the trocar employed should be very fine, so that the peritoneal cavity may be slowly emptied of gas. This is an idea that has been entirely exploded.

It is not for the purpose of opening up any new field to the operating surgeon that I bring this subject before you. I do not anticipate any great benefit to mankind from a careful study of this subject; but, nevertheless, it is a subject of great interest to the abdominal surgeon and the pathologist.

I am indebted to Dr. C. J. Hastings and Dr. R. H. Von Ezdorf for assistance in preparing this paper.

481 SHERBORNE STREET.

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THE RELATION OF PELVIC SUPPURATION TO STRUCTURAL
CHANGES THAT MAY OCCUR IN THE FALLOPIAN TUBES.¹

BY

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SINCE the question respecting the genesis of peritonitis has by extended pathological investigation been settled, more interest has been taken in determining the cause of pelvic suppurative processes. My attention was quite early drawn to the subject by there occurring in my own practice a series of cases of pelvic inflammation. In looking over the record of the histories of some thirty different cases of pelvic suppuration that took place in the female, I found that, though the original factors in some instances were seemingly different, there appeared nevertheless in each case symptoms and a course in the disease that had their starting point in some common lesion or morbid process.

By careful and patient examination I found that I was able to locate the disease or condition as connected with the Fallopian tube. This was facilitated by placing the patient in the dorsal posture and by employing vaginal and rectal indagation. By following the directions as laid down by Martin, of Berlin, I noticed that it was not difficult to determine the condition of the tubes, especially when they had undergone in any marked degree an enlargement or alteration. Tubal palpation was most easily accomplished by commencing at the uterine portion of the canal and following it along in an endeavor to map out its course. In a larger series of cases it was observed that the conditions, connected with the tube, leading to pelvic suppuration varied. There was not always a pyosalpinx, though this feature of a case has often led to pelvic abscesses recurring at different

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

intervals. In some cases, as was proved by a resort to celiotomy, the purulent exudation must have passed through the infundibulum or through the altered mucous and the disorganized muscular structures of the tube in its escape into the peritoneum. In one case, that of a married woman aged 29 years, the purulent exudation seems to have broken through an old walled-off pus cavity of the right tube, and to have pointed and to have been discharged through Douglas' posterior cul-de-sac; the patient was not permanently relieved until after the removal of the tube and ovary of that side. Gonorrheal infection of the tube in a large number of my cases was clearly traced as the cause of the disease in question; still, the presence of other bacteria in the tubes was not uncommon. Tubercular infiltration of a tube and an ovary has been met with. In the case of Mrs. C., aged 31 years, pelvic suppuration rapidly supervened after the patient had suffered from more or less ill health for some three years. The patient had previously given birth to two children that appeared to be fairly well developed. Her health, soon after the birth of the second child, gradually failed her. She had night sweats and an increasing cachexia that indicated a tuberculous condition, though there were no cough and no signs that showed that the lungs were involved. Vaginal and rectal induration and palpation revealed that there was enlargement of the left tube and ovary. The implication of the pelvic peritoneum at first was of the milder grade, but ultimately became more marked. At no time after I was called did a resort to salpingo-oöphorectomy appear to be for that case a justifiable procedure. The autopsy revealed that the tube and ovary were in an advanced condition of a tubercular cystic degeneration and that the pelvic peritoneum, though everywhere studded with tuberculous deposits, was for the most part in a commencing stage of involvement. I have felt that had the tube and ovary been excised in the initial period of the disease and before I was first called, the patient's life might have been prolonged. The primary infection of the tube of this patient may have resulted from the marital relation with a former husband. One case of pelvic suppuration resulted undoubtedly from the presence of actinomyces of the right ovary, involving the tube. The excised growth was examined microscopically by the late Dr. Samuel N. Nelson, who had been a careful student under Prof. Koch, of Berlin, and who regarded the development as the result of actinomycosis.

In this paper it is not my purpose to enter into any elaborate consideration of the causes of local affections leading to the involvement of the tubes, but merely to state that in dealing with cases of pelvic suppuration it will often be found necessary to extend the inquiries regarding the course from the pelvic peritoneum at which the exudation may have been effused to structures that are peculiarly susceptible to morbid changes. In searching for tissues or parts that are prone to become centres of diseased conditions, careful investigation will often show that the Fallopian tubes occupy no unimportant seat as points of beginning. The records of my own practice prove unmistakably that gonorrheal infection of the tubes is a most productive source of pelvic suppuration. In the histories of twenty-three cases in which the tubes presented indications of being the foci of gonorrheal disease, I find that the infection in four instances led to pelvic suppurative processes. In one of the cases, that of a woman aged 33 years, there had been an old pelvic cellulitis, but the inflammatory condition had been limited and had not reached any portion of the peritoneum. Rectal examination showed that the induration resulting from the cellulitis was posterior to the uterus. This attack seems, however, to have caused but comparatively little trouble to the patient, except it produced more or less anterior displacement and dysmenorrhea. The attack had its origin undoubtedly in parturient processes. After the accession of the specific inflammation the tubes were invaded at an early date. The pus from a pyosalpinx or tubal abscess on the right side escaped into the peritoneum and appeared in Douglas' cul-de-sac. The general and constitutional symptoms were unusually marked. The old site of the cellular infiltration was impinged upon and the consequent hardness was to a considerable degree overcome; this had the effect of causing adhesions of the uterus with left lateral displacement. Notwithstanding these unfavorable sequelæ the patient after some two years so far recovered as to become pregnant with a favorable termination. In looking over the record of the cases referred to it is interesting to observe what a small proportion of them was followed by peritoneal involvement. The presence of such a condition to so limited an extent supports the conclusion that has heretofore been reached by some observers that the purulent exudation is by the rapid formation of plastic material often walled off to

such a degree as to protect the peritoneal tissue from the dire consequences an attack of the disease would involve. In many instances of such cases, if not in most, the gonococci undergo destructive changes and so are prevented from exciting further pathological change. The final conditions resulting from the agencies of gonococci are often in striking contrast to those that may occur from the presence of other forms of bacteria. This was exemplified in the case of Mrs. G., aged 27 years. An evident salpingitis on both sides had resulted from an upward extension of uterine inflammation occurring some time after an abortion at an early date of pregnancy. The history and symptoms pointed to purulent involvement of the tubes from the invasion of gonorrheal inflammation. The peritoneal tissue escaped from the ravages of the morbid extension, though the tubes had undergone contraction and undoubtedly other manifest destructive changes. Excision of the tubes was considered as a possible outcome. After the lapse of several months pregnancy again took place, thus showing that the tubal element had not undergone permanent closure, or, if closed, relaxation did occur sufficiently to allow the passage of the spermatozoa.

Inflammatory processes occurring in the tubes from the presence of streptobacteria and from their allied forms are of most serious import. These forms of bacteria, so far as my own experience and observation have extended in the treatment of a considerable number of cases, have appeared to be difficult to bring under control. Pyosalpinx from the presence of streptococci does not always so readily become encysted or walled off as does a purulent formation that has appeared from specific infection. Catarrhal inflammation occurring in the tubes, or suppression of the menses, may cause lighter forms of inflammatory processes and may lead to pelvic suppuration, but such a sequela would be of rare occurrence. Chronic interstitial salpingitis is for the most part a mild type of tubal inflammation, and it may for some considerable period be limited in its course to the mucous and submucous coats; the morbid action may continue and so lead to the formation of pyosalpinx or muco-purulent exudation. An ovarian abscess may occur in connection with pyosalpinx, but this seeming complication is only a mere extension of the morbid process of the tube, and if left unrestrained may hasten the development of pelvic suppuration. An ovarian cyst may rupture into the peritoneum,

but this event is more likely to occur after the tube has become implicated—obstructed or occluded—especially when purulent or ichorous exudation has taken place in the tubal wall adjacent to the adventitious development. To such a case I was once called, but not until immediately after the rupture had taken place. Had removal of the cyst been effected some few weeks before, the patient could have been saved much severe suffering. Tubal disease may complicate uterine fibroids; this result occurs in the form of hypertrophic salpingitis and in subacute or in chronic oöphoritis. Tubes in this condition may become the foci of further development of pus that may find entrance, through disorganized tissues, into the pelvic peritoneum. This peculiar state of things may necessitate an operation for the removal of the structures enclosing the pus before it will be advisable to attempt total hysterectomy, which the extended fibroid condition of the uterus may render absolutely imperative. The singular variety of neoplasms denominated cystomata of the ovary, and liable to degenerate into a cancerous condition, frequently infect the peritoneum, but this may occur through more or less direct communication, though previous structural changes in the tube may have hastened or led to the cystic formation.

Hydrosalpinx the result of excessive accumulation of serum in the occluded tube may excite a further morbid process and so become the nidus of a purulent or muco-purulent exudation; this, if left uncontrolled, may work its way into the pelvic peritoneum. A hematosalpinx may assume a similar though a more threatening aspect. It is not to be denied, however, that many cases when left essentially unrestrained have had a seemingly favorable termination. Other morbid conditions of the tubes, such as the malignant or semi-malignant neoplasms and developments, may give rise to purulent infection of the pelvic peritoneum. Among the most baneful influences resulting from the presence of fibrous tumors of the Fallopian tubes is the tendency to take on malignant degeneration. Such growths furnish the pabulum and nidus for bacterial infection, which later may find ingress into other pelvic structures and into the pelvic serous tissue. A woman having suffered from the effects of any form of tubal disease, unless proper surgical measures have been instituted for her relief, is liable through the exciting agency of various factors to have at any time a recurrence

of the attack that may lead to pelvic involvement generally. Pelvic hematocele which occasionally undergoes suppurative changes results for the most part from hemorrhage of the tube; this may supervene on engorgement, rupture of the vascular tissues, or on other temporary or advanced structural changes of the tubes.

There are other important lesions which occur in the tubes and which sometimes lead to pelvic engorgement and suppuration, though I will refrain from making further mention of such conditions since I have already indicated that in presenting this paper it has not been my purpose to furnish a *résumé* of the literature on the subject, but merely to consider and to discuss briefly certain phases of pelvic suppuration arising from tubal disease that have come specially under my own observation and treatment.

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APPENDICITIS :

SUGGESTIONS FOR A MORE UNIFORM AND SIMPLE CLASSIFICATION TO AID
THE GENERAL PRACTITIONER, WITH REPORT OF A FEW CASES TO
ILLUSTRATE SOME OF THE POINTS PRESENTED IN
THIS PAPER.¹

BY

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I THINK I voice the consensus of opinion of all in noting the evolution and our gradual release from the use of such arbitrary classification as typhlitis, perityphlitis, etc., when by the clear term appendicitis we reach more correctly the true lesion as we now find it to exist in so many cases that present to both the physician and surgeon for a rational medical treatment, or that demand prompt, clean operative interference on the part of the surgeon.

Whatever classification is attempted in appendicitis, we must ever keep in mind the variety in length and location of this anatomical structure, the appendix.

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While a rapid consideration of the subject is comforting, still it rests largely with the work of such associations and societies as this to bring about a more concise classification of appendicitis, and if possible to emphasize the symptoms in such a way that our young practitioners, and especially our middle-aged and old practitioners, will be helped to recognize their cases more promptly than in the past.

As I have maintained for many years, the physician, be he the country practitioner or his more fortunate city brother, must work in unison with the surgeon in all cases that give evidence of appendicular trouble. All cannot become infallible diagnosticians, but an early, prompt consultation aids greatly in making a correct diagnosis and in the saving of life. We are yet seeing too many cases of supposed impacted feces, of pelvic abscesses, of renal colic, and other like conditions, unnecessary to name, that to the more practised eye and hand tell too clearly the story of trouble with the appendix. I am certain that any one who attempts an arbitrary classification of this surgical lesion, making all cases bend to fit such a mould, is justly liable to severe criticism.

The general practitioner looks to us for a concise classification of symptoms and a clear definition as to the stages of appendicitis, particularly in reference to surgical interference. He knows full well, and an intelligent public understands thoroughly, that there are many conditions or lesions associated with the appendix that do not require surgical interference. Both know equally well that there is also a certain class of cases that require a moderately quick or a very prompt interference that the life of the patient may be saved. How can we satisfy each?

I wish to emphasize that the intelligent public, as regards medicine, and especially surgery, has had brought to its attention, by articles lately published in the weekly or monthly papers, more direct information than has ever occurred in the past in the history of these subjects. In a large class of migratory citizens who go to the mountains or seashore, to the isolated places of this great country, we find that they are on the alert and are watching the symptoms of any illness that may present in their family circle, among friends, or even in the boarding house or hotel where they may be housed for the time being, with more than usual interest. I do not hesitate in asserting that some of these well-read, well-posted laymen are not infre-

quently a direct aid to the isolated practitioner, who may possibly see in one of their family his first case of true acute appendicitis. Now, to aid this individual practitioner our text books are far from being as clear as we could wish. There is much that is wanting, and it is only by continuous discussion of this subject in our special societies, in our larger associations, in which the general practitioner comes in direct contact with the specialist or general surgeon who has had an experience in these cases, that we can hope to enlighten and to place the recognition and treatment of appendicitis in its true light.

From a fairly large field of observation I must say that I have seen much comfort and good result from a classification in which we do not attempt too great a distinction as to the actual pathological state of the appendix itself. By far the most dangerous class of cases that we have to deal with are the acute perforative ones. They may receive the name of gangrenous appendicitis, acute ulcerative appendicitis, septic appendicitis, etc. The result is, alas! sadly the same regarding the patient, whatever may be the classification that has been made. The symptoms are much alike in the respective conditions we have had so ably defined by different authors. The train of symptoms is fairly well illustrated by one or more cases like the following.

Mr. R., æt. 25; good surroundings in every respect; a student most of his life; an accountant for the past two years and partner in a large factory, responsibility constantly increasing; habits excellent; scarcely ever complained of ill health. While standing at his desk, 10 A.M. Saturday, November 19th, 1893, paying his employees, was seized with a sudden, severe pain in the right side of the abdomen, somewhat low down, as he described it, which compelled him to cease work for the time, though within an hour after he walked nearly a mile to his home. When first attacked he vomited some, and a little more later on. He was seen at once by his family physician, Dr. Race, who was then obliged to give him morphine hypodermatically to relieve pain. The doctor, from a careful examination of the case, from the nature of the symptoms, by exclusion, covering the ground thoroughly well, felt sure later in the day and evening that his patient was suffering from perforative appendicitis. He passed a fairly comfortable night, but on Sunday morning there was distention in the right inguinal region,

with a tendency to extend over the abdomen, his pulse was rapid, and it was evident to the family that the urgency of a consultation and possible operation (insisted upon by the family physician) could not be delayed. A telegram received enabled me to reach the patient and to meet the doctor in consultation at 2 P.M., a little more than twenty-four hours from the time the patient was taken ill. He now presented a very anxious state. Heart's action was very feeble, pulse 140, and over the entire surface of the body the capillary circulation presented a condition of stasis, being decidedly ecchymosed in many places. His respiration was sighing, and there was that sunken condition of the eyes, the anxious expression of the face, the quick replies to questions asked, and restlessness, moving from one side of the bed to the other; vomiting small quantities, at times of a spinach-like-looking fluid; there had been two or three movements of the bowels, the quantity of urine fairly good, but it was evident that his state was a very critical and serious one. It was difficult to have the members of his family understand fully how serious his case was. On direct examination the abdomen was not greatly distended, but there was a board-like sensation imparted to the fingers, and on pressure there was the resistance of the abdominal muscles to be noted in such cases—the effort on the part of Nature to keep conditions within the peritoneal cavity as quiet as possible. There were here, in the general expression of this patient, all the symptoms of septic peritonitis. The futile attempt was made by hypodermatic injections of strychnia, of digitalis, of rectal enemata and whiskey, and other nutritive material, to rouse him, if possible, from his alarming condition; and while at midnight it seemed as though Nature was able to rally somewhat, yet at early dawn, when his condition was fully explained to him, as an intelligent person he acquiesced in the operation, now found absolutely necessary if anything would save his life. And yet the weakness of his pulse, the cyanosed condition of his extremities, which had continued, all gave us but little encouragement.

We found a condition of acute perforation of the appendix, a gangrenous extremity, escape of secretions containing the poisonous bacillus coli communis into the peritoneal cavity, a malignant septic peritonitis present, no feces escaping, no pus at any point, but simply flakes of acute inflammatory peritoneal trouble. The operation was done as rapidly as possible, the

right inguinal region and pelvis rapidly sponged, the stump of the appendix ligated and removed, drainage by means of a glass drainage tube, packing iodoform gauze around it, and patient placed in bed. The appendix was an unusually long one, nearly five inches, lying loose and free in the peritoneal cavity, with a tendency to dip down in the pelvis.

It has been well said there is little encouragement to the surgeon in operating upon a dying patient, and such was the case here. The shock of the anesthetic was not so great, but his powers of resistance were not equal to the demand made, and he died a few hours afterward, less than forty-eight hours from the time that his first symptoms presented. Autopsy showed no fluid within the peritoneal cavity. There was evidence of general septic peritonitis.

Here is a case, to the Fellows present, unnecessary to review as regards the malignant intoxication of his system through the entrance and rapid multiplication of the bacillus coli communis, the acute destructive breaking-up of his blood supply, the toxic poisoning being overwhelming. It has been asserted by some, and I am yet one of the number, that I scarcely believe a case like this, with so little ability to resist, recovers under any medical or surgical interference; but a precisely similar attack and very much the same train of symptoms may occur in some other person whose system has within it greater powers of resistance, and a happier result follows: phagocytes or leucocytes get their work in so promptly that a degree of resistance is presented to aid the surgeon. Therefore I believe that no one of these cases should be allowed to pass without the effort of a quick, rapid diagnosis and an intelligent, aseptic operation.

To further illustrate: J. McC., *at.* 16, weight one hundred and thirty pounds, height five feet six inches, who had grown rapidly the past year, had the appearance of development equal to that of a young man of 21, an athlete in many respects, had complained of some disturbance about his bowels during April and June, 1894, but considered to be an attack of indigestion due to the eating of improper food. At the time in excellent health, September 25th was attacked with sudden pain in bowels, followed by vomiting, with general distress through the abdomen. The pain was controlled by means of anodynes and patient put on malted milk. Bowels responded to small doses of calomel with Hunyadi water, and several small fecal dis-

charges were secured up to October 1st, but temperature ranged from normal to 104° . He then suffered intense pain followed by great distention of the abdomen, with no movement of the bowels either with the aid of rectal enemata, of laxative diet, or medicines given internally. He vomited more or less continuously, and in this condition I saw him in consultation with Dr. Rice, his family physician, October 5th, 1894, when the patient presented a condition of great distention of the abdomen, hiccupping at times, pulse 120, temperature 102° , hands and feet covered with a disagreeable perspiration, somewhat cold, and that condition present, so often noted in like cases, of great mental distress. When told of his condition he objected very decidedly to an operation, but was assured that he would die unless one was attempted. Believing the appendix was at fault and that an operation might save him, it was urged, his parents consenting, and done at once. Median incision. A long, loose appendix was found extending down into the cavity of the pelvis, where it had formed an attachment, and in doing so constricted several loops of the small intestine, causing obstruction. The end was perforated, in a gangrenous condition, and the pelvis filled with pus and bloody serum. The diseased portion was rapidly removed. No attempt at flushing the abdomen and cavity, or washing out in any way, but thorough sponging was done with a saline solution, a long glass drainage tube passed down to the bottom of the pelvic cavity and long strips of iodoform gauze passed well down and packed around it. Wound closed by interrupted silkworm-gut sutures. The discharge continued very abundant for several days. The gauze was removed at the end of forty-eight hours and cavity not repacked. Glass drainage tube was kept in for a little more than twelve days, and then a rubber drainage tube substituted for a short time afterward. A catheter was used for a short time after the operation. Bowels moved under the influence of rectal enemata. Temperature returned to nearly normal, reaching at one time $100\frac{1}{3}^{\circ}$, due to sloughing of tissues in the incision. Complete union and closure of the drainage tract did not occur until the end of the forty-third day, when the patient was completely convalescent, bowels moving normally, and digestion going on in a natural manner. In every respect he has made a complete recovery.

Here was a case probably of acute perforative appendicitis,

but Nature was able to resist for a time a rapid development of septic peritonitis. All of us have records of similar cases—alas! too many as regards our mortality lists. These are the cases that bear no comparison with the operation for relapsing appendicitis.

In the vast majority of these cases the patient gives but slight evidence of the approach of the terrible illness that is presenting. There is slight pain and discomfort, possibly a tendency to retraction, the drawing-up of the right leg, all occurring within a few hours, almost before the physician is aware of the seriousness of the case. He is suspicious but does not make a complete and positive diagnosis, when there comes, as it were, an explosion of symptoms in which the patient complains of great pain. The latter is overcome by anodynes, possibly, but at the same time the patient passes into a condition of collapse from which he does not recover, and dies within a short period from the onset of the symptoms. The autopsy reveals a perforated appendix. There may be more or less clear yellow, dark, or bloody serum in the cavity of the pelvis or between the coils of the small intestine, but no pus is to be discovered. In some cases a fecal concretion or possibly a foreign substance is found just passing out from the ulcerated appendix, perhaps has escaped and is lying loose in the peritoneal cavity. Nature has had no time to form adhesions to surround the appendix, to protect the peritoneal cavity, and therefore these become the most serious and dangerous cases we have to deal with—so little time is afforded, so little opportunity given for the recognition of the dangerous condition that is present; but to those of us who are coming constantly in contact, necessarily, with the profession at large, it is a comfort to know that the general practitioner is becoming more and more alert in reference to this classification of appendicitis.

Another variety of these cases is the acute perforative form associated with acute suppuration. To illustrate:

Miss M. N., *et.* 19, presenting an excellent history of health, had been eating freely of grapes the week previous to her being taken ill—a statement very quickly made by herself and mother when the possibility of trouble about the appendix was suggested. During the day of September 15th, 1894—Friday—she had exposed herself somewhat by sitting upon the cold ground while visiting the cemetery. In the evening she was

seized with a severe pain in the epigastric region; was given a Seidlitz powder by her mother, but soon vomited. She was seen on Saturday morning by her physician, Dr. Steenbergh, who gave her small doses of calomel, and to relieve pain, which was very marked and spasmodic at times—appendicular colic, so-called—a hypodermatic injection of morphine. She had two or three movements of the bowels, and was easier Sunday evening, the 17th, when I saw her with her physician. She complained now of pain located almost entirely in the right inguinal region, increased on deep pressure, particularly when making use of the McBurney method in locating his point of tenderness. I had but to confirm the doctor's opinion of appendicitis. Her temperature was 101° and pulse above 100. There could also be made out in this case a distinct phlegmon, a swelling, the much-looked-for tumor by some. I saw her early the morning of the 18th with the doctor; temperature 102° , pulse 120. There could be no doubt now as to a condition of acute suppurative appendicitis. There was the anxious expression of the face, the board-like sensation over the surface of the bowel, with beginning distention. She was removed to the hospital and I operated at once. There was much effusion of serum in and about the location of the appendix and extending into the cavity of the pelvis, the serum presenting a distinct yellowish-looking appearance, so indicative in such cases of approaching suppuration; lymph exudate thrown out, holding coils of the small intestine, and at the junction of the appendix with the cecum a collection of pus an ounce or more in quantity. Appendix was found in a gangrenous condition; removed in the usual manner; was perforated and contained several grape seeds, something that in reality we seldom meet with. In this case the peritoneal cavity and pelvis were thoroughly washed out with saline solution containing alcohol. A long glass drainage tube was introduced into the cavity of the pelvis, and the immediate neighborhood of the stump of the appendix and cecum packed with iodoform gauze, which was changed on the third day, temperature at that time showing a slight rise. Packing was renewed, drainage tube left in for a week, the patient making an uninterrupted recovery. In this patient the power of resistance undoubtedly aided in her recovery.

A second somewhat similar case: H. T., almost precisely the same history, seeing him on the sixth day with his family

physician. Operation. Two large fecal concretions in the appendix, looking almost like kernels of peanuts. Perforative, sloughing condition of the appendix; adhesions throughout the small intestine; pockets of pus in every direction. Removal of appendix; thorough washing out, thorough drainage, but death at the end of forty-eight hours.

Had this patient been seen on the second or third day by the consulting surgeon, who doubts but that he would have recovered from the operation? The family physician in this case, a most lovely man in every respect, perhaps 60 years of age, said very frankly to me "he did not believe any case of appendicitis ever recovered from an operation."

It is just such well-meaning general practitioners that we need to impress more with the importance of a better classification of their cases, of a prompt recognition of acute symptoms, and an early calling-in of the surgeon in whom they have confidence.

I might present many such cases as the last two, a fair number of them recovering, but all *belong to a class requiring an early, prompt operation.*

In the immediate treatment of the cavity of the pelvis in these cases I am inclined to think that a thorough mopping-out with the sponge or sterilized gauze is quite as well as, better than, too extensive washing. Dr. McBurney has given us a good paper on this subject.

Another form of appendicitis is the catarrhal relapsing variety, which gives in many cases extensive localized adhesions, which result, I believe, in some instances in complete obliteration of the appendix. In other cases it gives us the thickened, swollen, sensitive appendix, and in some one of the attacks perforation occurs, when a train of symptoms presents very much like the acute perforative ones. In still other cases, in some one of the attacks, suppuration takes place and an abscess forms which may find its way external or becomes that kind of a case in which, as we know, the abscess cavity is emptied into the pleural cavity; emptied into some portion of the intestinal tract; emptied through the lumbar region, down the thigh, and at the umbilicus; in the left inguinal region, particularly when the appendix is found drawn over on that side (as is well known, we have left-sided appendicitis)—in fact, there is no limit to the possibility of where such an abscess may terminate. For these

latter suppurative cases the general practitioner is not yet thoroughly on the alert.

Catarrhal appendicitis with suppuration is a form met with not infrequently, and not especially the result of any foreign body resting in the appendix, or even due to fecal concretions. It is possible for it to result from some traumatism. We know that the bacillus coli communis has much to do with it.

Relapsing Catarrhal Appendicitis.—There is in connection with these cases an inflammatory condition that is quite pronounced. The patient will complain of pain in the locality of the appendix. There is increased pain on pressure and the McBurney point is to be observed. There will be, in many instances, the so-called tumor. There is an increased pulse rate and temperature; in some instances a chill or more. There will be constipation present, but the pain is not quite so terrible as the spasms or the suffering that the patient has in acute perforative appendicitis. The administration of a laxative, the use of rectal enemata, local application of heat or cold, relieves and places the patient in a condition of rapid recovery. Of this class of cases of catarrhal relapsing appendicitis every practitioner sees not a few. These are the cases that give so favorable a result in the medical treatment of appendicitis. No doubt the so-called olive-oil treatment, keeping the bowels in a fairly relaxed condition, does great good, and, with or without the obliteration of the appendix, many of these cases recover after one, two, three, or four attacks; yet we know, when we take into consideration the very small mortality accompanying the operation for removal of the appendix in relapsing appendicitis, that the death rate is not as great as in cases where the catarrhal appendicitis becomes more dangerous with each attack, with ulceration or perforation occurring finally, peritonitis and death resulting as in the cases of acute perforative appendicitis. In these cases of catarrhal relapsing appendicitis the irritation may be alone within the appendix, which produces a more prolonged inflammatory condition; the patient may still recover, but the appendix is left strictured at points, a stenosis presents, and the patient in these cases has a more or less constant condition called appendicular colic. When the inflammatory condition is confined to the appendix only, it is astonishing how enormously distended it will become at times. The description of the pain in these cases is exceedingly interesting. If the appendix is

long it will sometimes reach back underneath the mesentery of the cecum—is found not infrequently behind the cecum, up toward the lumbar region; if an abscess results it may be opened at this point, all or a portion of the appendix removed, the peritoneal cavity not entered, followed by recovery. These cases of chronic relapsing appendicitis give at times marked constipation and threatened obstruction of the bowels, particularly if the appendix is long in its anatomical structure and dips down in the pelvis; or it will form adhesions elsewhere and become the band that constricts even portions of the large intestines, not infrequently the small intestine, producing complete obstruction. In other cases the appendix may be very short; it drops down into the lower portion of the inguinal region, attaching itself to the inferior and lateral walls of the pelvis, and becomes adherent. Suppuration may occur and pus form, but the adhesions have shut off the appendix from the peritoneal cavity, and we have now that class of cases such as have been operated upon for many, many years by the Hancock-Parker operation, almost uniformly recovering, and yet even here it will be safer for our patients to have an early operation after one or two well-marked attacks of catarrhal appendicitis.

I would say, then, in making a classification of appendicitis, let us adhere as closely as possible to the line of conservatism, keeping constantly in mind the possible anatomical structure and position of the appendix, as is illustrated to us who are operating more or less constantly, but which is not so firmly fixed in the mind of the general practitioner. Let me emphasize: make our classification of appendicitis as simple as possible. We must overcome the impression that prevails in the mind of the general practitioner that a foreign substance causes all the trouble. We know this is the case in only a minority of our patients. The bacillus coli communis is the important factor.

I would say, then, we have:

First, acute perforative appendicitis, such as I have described.

Second, catarrhal appendicitis—a pathological condition due to the bacillus coli communis, possibly some traumatism, possibly some foreign substance, relapsing in its character, one or more attacks occurring with shorter or longer intervals. In some cases it is accompanied with suppuration and abscess within or without the peritoneal cavity; in some cases the attack results in perfora-

tion, causing death, very much as in acute perforative appendicitis.

The diagnosis in all these cases should be made as clear and distinct as possible, and the earlier the better.

Acute perforative appendicitis, with or without suppuration, requires but one line of treatment, and that is surgical interference; and these are the cases which we have not yet succeeded in rescuing to the extent of making our mortality lists anything but large. The earlier the diagnosis is made by the family physician, and the sooner the operation is done in the future, the greater will be our recovery list.

I wish it to be distinctly understood that in doing the operation in these cases they are not to be confounded with cases of relapsing appendicitis or removal of what is really almost a normal appendix. These forms of catarrhal appendicitis I have referred to sufficiently. If the patient has but the one attack we will probably find that neither they nor ourselves as operators feel like having an operation; but when the second attack presents, the third, fourth, etc., then an operation would seem to be absolutely necessary, as the rate of mortality has been so decidedly small.

Within a period of eighteen months I have done fifteen of these operations without a death, and have found the appendix in all conditions imaginable—short and long, obliterated to a mere string, in other cases enlarged, elongated, and swollen, with adhesions very extensive and embarrassing, in some cases associated with a sinus still discharging from a previous abscess, very few cases presenting a foreign substance, fecal concretion or otherwise.

In this short paper I have made no attempt to enter into the pathology and pathological changes of the appendix itself. This ground has been thoroughly covered in many able articles already published. Nor do I know that I have accomplished much in simplifying the subject; but I would most earnestly ask of the Fellows of our Association, when talking with the general practitioner, the family physician, when lecturing to their students, to simplify the subject as much as possible. It is sometimes distressing to hear the earnest, hard-worked country or city practitioner attempt to enter into the minute description of the particular variety and form of appendicular trouble with

which he believes his patient is afflicted. Let us impress upon them the importance of not making the error of considering the case to be one which it really is not, overlooking the true condition. Rather let us make our consultation visit one that assists in a clearer, more correct diagnosis; one that does not mystify, but really aids.

28 EAGLE STREET.

TREATMENT OF HYPERPLASTIC CONDITIONS OF THE UTERUS.¹

BY

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(With illustration.)

IN the first place, I desire to explain what is meant by hyperplastic conditions of the uterus. Dr. T. G. Thomas, in early editions of his "Text Book on Gynecology," recognized a condition which he named "chronic metritis" and another condition which he termed "areolar hyperplasia." I have always admired and indorsed this distinction, and it is one which should not be dropped. According to our views on this subject, we do have a chronic inflammatory condition where the uterus is soft, edematous, size increased, and an increased amount of blood in the organ. We would call this metritis. But the condition the treatment of which we propose to discuss goes further. There is permanent blood stasis; the blood is not carried out of the uterus as rapidly as it is received. The vessels become distended, their walls lose their tonicity, and certain elements of the blood contained within them, by a method of exosmosis, pass into the cellular tissue or perhaps even between the muscular striæ. The size of the organ is increased by this excessive amount of blood and serum. There is pressure made upon sensitive nerve filaments, which gives rise to the pain and sensitive condition experienced by patients suffering from this disease. Plastic material is thrown out into the walls of the uterus. Nature attempts to take care of this material, and does absorb it to a certain extent, but her powers are insufficient in many instances to

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

take up from the uterine tissues the material thus thrown out of the circulation. Again, this increase of circulation taking place during the condition we term "chronic metritis" causes an over-nutrition of the muscular fibres and of the utricular glands. The result is that we have a thickening of the walls of the uterus due to this increase of muscular tissue, and we have besides a larger amount of secretion taking place in the glands located in the walls of the organ. This accounts for two conditions that we find present in hyperplasia of the uterus, viz., increase in size and weight, and also for the enormous quantity of glairy, white-of-egg secretion that flows out of the cavity of the uterus. Thrust a small, pointed knife or the spear-pointed instrument of Buttle into the tissues of the uterine cervix and you will have considerable hemorrhage; in fact, you will not only have divided some of the over-distended blood vessels, but you will have given exit to extravasated blood which was in the cellular and muscular tissues. On account of the intimate connection and condition of circulatory anastomosis existing, the circulation between the uterus, the Fallopian tubes, and the ovaries, at the time we have the over-supply of blood in the tissues of the uterus, at the same time we have an increase of blood in other organs connected with the pelvic circulation.

Now in regard to treatment. We must first unload the over distended blood vessels, thereby reducing the size and weight of the uterus, and enable Nature to absorb the materials that may have been thrown out into the tissues—puncturing the cervix uteri with Buttle's spear-pointed knife, penetrating deeply into the tissues, allowing free hemorrhage to take place through the openings, not only dividing the capillaries but allowing also the material exuded between the tissues to be discharged. The local blood-letting



Sellman's reamer.

does not depress the patient, or the effect is entirely local. In

most cases the uterine tissues are swollen and there is so much pressure exerted toward the cavity of the uterus that it is with difficulty that the accumulations contained within the cavity find an opportunity to be discharged. Dilate the uterine canal, when you commence treatment, by the rapid method, and enlarge this opening by introducing a reamer, which cuts away any dense structures which may give rise to a strictured condition. Besides, this reaming process opens the closed ducts or openings of the glands and allows their secretions to be discharged into the uterine cavity. Then pass a strip of iodoform gauze into the canal, not sufficient to pack it, but merely to act as a drain and prevent accumulation of material in the uterine cavity. Swabbing the endometrium with iodine and carbolic acid is an efficient aid to the treatment.

The vagina is lightly packed with iodoform gauze and below that a dry cotton tampon. These dressings act as a pessary and at the same time absorb the secretions. The intrauterine drain should be changed every twenty-four hours, but the iodine and carbolic applications made only every four to six days. Use your judgment in regard to the use of cauterizing agents. Every third day introduce an electrode (metal wrapped with cotton, moistened with water) attached to the negative pole of the faradic current, placing a moistened felt pad with positive attachments on the abdomen over the fundus of the uterus. I prefer the secondary current with a coil of small wire of moderate length. If the patient is very sensitive and nervous use a longer coil. The application is kept up for twenty to twenty-five minutes. This treatment causes contraction in the muscles of the uterus, and a certain amount of blood is forced out of the blood vessels by the effect of the current. Very frequently, after making use of the intrauterine electrode, we introduce a cup-shaped one into the vagina, placing the cervix in the cup and passing the current for eight to ten minutes longer. Vaginal douches of carbolized hot water are used each day. The nurse or patient herself removes the vaginal and uterine packings before the administration of the douche, and the dressings are replaced by the physician. The patient is allowed moderate exercise and her diet should be wholesome and nutritious. In regard to internal medication, keep the bowels active each day by the use of saline cathartics. Administer fluid extract of ergot in twenty-minim doses three times

a day, and frequently order Fowler's solution of arsenic in five-minim doses three times a day. Bromides of potash, soda, and ammonium are required if the patient is nervous and excitable. Insist upon the patient entering the hospital or sanitarium whenever it is possible for her to do so, under the care and attention of trained attendants, securing good and nutritious food, with regular and sufficient sleep, freedom from the annoying happenings which will occur when she receives treatment at her home.

When the circulatory equilibrium has been established in the pelvic organs most of the sympathetic disorders present in other organs of the body will disappear.

No. 5 EAST BIDDLE STREET.

SOME REFLECTIONS ON CONDITIONS AND METHODS FAVORING SUCCESS IN ABDOMINAL SURGERY.¹

BY

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THERE are in all celiotomies the undetermined factors, some of which will become apparent at the operation, some immediately subsequent to it, and others will elude the grasp of careful inquiry.

Why the shock in one case expends itself on the organs of circulation, inducing cardiac paralysis; in another on the excretory function, suspending the elimination of urea; or in a third by the arrest of respiration, is beyond the ken of the medical expert. While one patient escapes the risk of sepsis or peritonitis which from the standpoint of the careful observer seems imminent, and another falls a victim to it when the liability was apparently least, the fact that in one instance it is attributable either to the skill or want of skill of the operator, to heredity, to individual idiosyncrasy, or some other occult cause, is, after all, an admission of our ignorance. However, this very limitation of knowledge is no excuse or palliation for not making the most careful plans whereby the patient can be saved from un-

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

foreseen and undefinable disaster. The limitations and manifestations of vital force, as witnessed in functional and organic life, are seemingly as difficult of apprehension and understanding as the higher Power which launched them into being. The fact is never to be lost sight of that no one can be held responsible for conditions and circumstances over which he has no control. So, also, at its best, human judgment in matters which from their very nature are doubtful and problematical should not in justice be held as infallible. But in the realm of abdominal surgery so much is known or knowable that failure to obtain such facts as are open to the most searching investigation is little less than criminal. For this reason success in abdominal surgery is not an accident, nor is it a fruit of sudden growth; neither is it the rapid and forced development of a full-fledged specialist, born under the shadow of a medical college or set in motion by the act of a State examining board. With this class of practitioners their highest attainments do not antedate years of patient study and application, and their best records have not been mellowed by the discipline of failure and mistakes, nor strengthened by long periods of unremitting labor and patient observation. *Real success* in its highest manifestation is rather due to the harmonious blending of natural endowments, thorough scientific acquirements, and a patient and progressive cultivation of the practice of surgery. This means much. Some men, however superior their mental endowments, exceptional their opportunities, and ardent their desire for high attainments in this field, will fail because of natural unfitness for such a line of work. They may lack sound judgment of what it is wise to do or not to do, or be wanting in dexterity of manipulation; their technique is faulty, or they may not possess confidence in themselves to grapple with unseen difficulties or unsuspected complications, any of which might prove fatal to the undertaking. With this there must be such entire subordination of ambition to duty as will keep the surgeon on the high plane of right doing.

The conscienceless operator, who prostitutes his exalted calling to base and selfish purposes that he may thereby add to his *clientèle*, should be driven from the ranks of enlightened society. Human life is too precious to be trifled with, and the aspirant who lacks the judicial quality of mind which fits him to weigh the reasons *pro* and *con* should refrain from passing judgment

on interests so sacred. This implies that the moral and judicial qualities must be in harmonious ascendancy.

Another vital qualification to the best work in celiotomy is a thorough mastery of normal anatomy and physiology, and an equally quick perception to recognize the changed relation of the structures in disease and their pathology. This involves the possession of such an exercise of the faculty of sound judgment and accurate observation as will enable its possessor to correct and modify his diagnosis at every step of an operation. This perfect equipoise of mind and capability of grappling with unexpected conditions is one of the highest qualifications for successful work; and should he, from mistaken diagnosis, encounter a cyst of the cord instead of inguinal hernia, a hydro-salpinx supposed to have been an ovarian cyst, or tuberculosis within the area of the right iliac fossa instead of appendicitis, he will suffer no embarrassment and his patient no increased hazard.

Entire familiarity with the principles of modern surgical procedure and proficiency in technique is not enough, but with its possession there must be the conscious ability to apply and put in orderly operation all this knowledge. It is this combination of endowments and acquirements which makes the basis of the highest success. These qualities of head and heart have given us the McDowells and the Simses, the honored founders of American Gynecology, and the courage and patience of these ideal leaders should remain a perpetual inspiration to those who seek for new and higher attainments. Again, concentration of effort in one line of work, with freedom from "distracting care," is a powerful aid to proficiency. The worker who diffuses his efforts over the whole domain of medical and surgical practice must not expect the highest excellence in special lines of work. Among the many considerations which enter in as factors of success or failure in celiotomy, few will be mentioned. One of the most important is proper preparation of the patient, and, unless emergency forbids, it should *never be neglected*. If the health of the patient is seriously impaired from the condition requiring operation, from inability to take proper exercise, or from other coincident disease, effort should be made, hygienic or therapeutic, for its improvement. The state of the general health, the condition of the heart, kidneys, and nervous system, should be thoroughly investigated.

The question of renal sufficiency, as related to the average excretion of urea per diem, is of the highest importance. With such knowledge the surgeon will then be prepared to give intelligent advice as to the propriety of an operation not only, but to inform the patient or friends as to the probable risk to be encountered. Then, if failure follows, the danger will have been properly understood and the surgeon saved unavoidable censure; for in the presence of grave disease from which the patient will, if not relieved, necessarily become unfitted for duty, or perhaps perish, risk, both as regards the operation *per se* and the hazard incident to the use of anesthesia from disease of the heart, kidneys, or other organs, and from shock, hemorrhage, peritonitis, or sepsis, is certainly justifiable, but to what extent it should be assumed will depend on the consent of the patient or friends and the judgment of the operator. Skill in selection of the anesthetic and its administration will receive due attention. The alimentary canal should be thoroughly empty at the time of a celiotomy. The power to inspire the confidence of the patient in the result of an operation adds much to the favorable issue. As a rule, when the patient is demoralized by fear and the need of interference is imperative, make the hour for operation the earliest practicable. Shock from fear is highly mischievous. The surroundings of the patient, the operating room, the assistants, the nurses, the instruments, the dressings—in short, all that enters into the preparation for an operation, down to the minutest detail, demands the most careful preparation. Few things add more to the favorable outcome of an operation than the hearty and intelligent co-operation of assistants and nurses. This familiarity requires time and training, so that assistants or nurses shall be able to anticipate the wants of an operator, but it is worth all the time and effort it costs. Everything which shortens the period of anesthesia and the time of the operation itself, without the sacrifice of proper technique, should be studiously followed.

Nothing contributes more to such ends than thorough provision for every possible or remote emergency. How many patients have been sacrificed for the want of some special heart stimulant or the absence of a needful instrument or appliance! Facilities for quickly changing the position of the patient to or from the Trendelenburg position, or from one side to the other, should be the best. Nothing short of perfection, so far as attain-

able, in these details will satisfy the conscientious surgeon. The necessity for the strictest aseptic precautions is so universally recognized as to require no comment. As a rule very little time should be required in entering the peritoneal cavity. The incision should be as short as possible, but long enough so that valuable time and fruitless effort should not be sacrificed to needed room for rapid and easy manipulation.

If the subject is a woman always have the vagina sterilized, as emergency may arise which makes drainage through that channel indispensable; particularly so when gauze packing is required to check oozing from raw surfaces unavoidably made by enucleation of large growths, or where free drainage is imperative from surfaces already septic. If possible, see that no raw surfaces are left intraperitoneal. Use absorbable material for intraperitoneal ligatures and sutures whenever admissible. If catgut is selected use dry or from alcohol. Great care should be exercised that it remain hygroscopic until its introduction into the living structure, for then absorption of fluids renders the ligatures tighter and thereby diminishes the liability to hemorrhage.

One important point should be remembered: never in tying catgut trust to a surgeon's or square knot, but tie again, or even two extra knots. This is needful to prevent, under some conditions, maceration of the ends of the ligature and consequent untying. Doubtless this fact has been misleading and has prejudiced many operators to discard its use, supposing failure resulted from inadequate tensile resistance, when in fact the ligature had untied. This untying is peculiarly liable when the free ends of the ligature chance to remain in the presence of serum or on mucus-secreting surfaces. It is usually safe to assume in plastic work, where there is only moderate tension on approximating structures, union will, if ever, take place before the catgut is absorbed, and if union is delayed silk will not remedy the defect. If silk is selected use the smallest size compatible with safety. Whatever form of needle is employed, see that it is no larger than is needed to safely penetrate the tissue and carry a thread large enough for safety, either as ligature or suture; as far as possible see that the suture material fills the opening made by the needle. Larger needles than necessity requires cause needless exposure of structure and induce avoidable hemorrhage. Great care should be exercised not to tie

ligatures too tightly; they are more often too tight than too loose. The amount of pressure required to effectually close a blood vessel, particularly when in direct contact with the whole circumference of the vessel and held in position by adjacent structures, is not very great. Special care is needful when the structures are soft and friable from disease. I recently witnessed an operation in which fatal secondary hemorrhage occurred from too tightly tying the ovarian artery. As a rule, unless position and gravity are greatly in your favor, do not be too certain that you can cleanse the peritoneal cavity by irrigation. If septic material escapes from some isolated surface or cavity during an operation, better trust a skilled assistant to remove it by the use of heavy gauze sponges. Otherwise a liability to scatter the poison to new locations more than balances the advantage obtained. If diffused septic conditions of the peritoneum are already present, much may be accomplished by thorough irrigation and proper drainage. There is no necessity in the toilet of the peritoneum to remove every drop of blood or serum. Its capacity for disposing of not only these, but some germs, is well recognized. It is safe practice not to resort to antiseptics or germicides within the peritoneal cavity, the exception being the sponging of limited areas which are likely to prove the foci of new disturbances. The question of drainage is one of transcending importance. It should never be resorted to except for very substantial reasons, and is to be dispensed with at the earliest possible moment. In certain conditions drainage is imperative, and without it the chances of recovery would be *nil*. The doubtful cases are the puzzling ones. This question must be determined by the judgment of the surgeon on the merits of the individual case. Material for drainage will vary with the several indications present and the preference of the operator. It may consist of glass, rubber, or gauze. If gauze, one precaution should always be taken, viz., to turn in or stitch over the cut edges of the gauze, so that shreds of cloth or ravellings shall not become detached or left within cavities which are about closing. If deemed best to fill any considerable cavity from above downward with gauze, there is often an advantage in using the Mikulicz drain, on account of the greater ease of removal. Under other conditions candle-wicking is superior. Its removal is likely to be much easier, for it can be separated by piecemeal and is thereby less likely to disturb adhesions or

cause hemorrhage. When circumstances will admit, experience amply proves that through-and-through drainage has manifest advantages. It should never be forgotten that every contact made with raw surfaces, particularly the peritoneal, results in shock and to a degree lowers the vital resistance of these structures; consequently undue manipulations should be scrupulously avoided.

The method of closing the abdominal wall varies with the preference and experience of the individual surgeon. Either method, by layer or *en masse*, shows entirely satisfactory results. Certainly more time and skill are required in approximating the distinct structures of the abdominal wall. Serious objection rests against buried, unabsorbable sutures, for their liability to cause subsequent trouble does not compensate for the added risk. Better close the wall *en masse*, and for this nothing can be better than silkworm gut. As to after-treatment, hot water to quiet gastric irritability and thirst, and an early movement of the bowels as is permissible with increased peristalsis, meet the indications in most uncomplicated cases.

Ample time for the thorough recovery of the abdominal wound is for every consideration wise and economical. While proper regard should be had for the views of others, if the weight of personal observation and experience is ignored the chances are that one's own train of reasoning will become illogical and deceptive and his methods vacillating and untrustworthy. Happy the surgeon who is conscious of the fact that the citadel of his power is within himself!

291 HANCOCK STREET.

RUPTURED INTERSTITIAL PREGNANCY.¹

BY

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It is my purpose to treat of ruptured interstitial pregnancy occurring before the fifth month. There are at most but three²

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

² Webster: "Ectopic Gestation," p. 82.

cases on record in which the rupture has taken place into the broad ligament. I shall speak only of those in which the rupture occurs into the peritoneal cavity.

Since an experience with a case last April I have read all the literature upon the subject within my reach, and it has become plain to me that this form of ruptured ectopic gestation has not received the consideration the importance of the subject demands.

In the vast experience of Mr. Tait up to the time of the publication of the first volume of his book upon "Diseases of Women and Abdominal Surgery,"¹ he had not found a single case of rupture of this form of abnormal pregnancy upon the operating table. He had, however, examined a specimen removed on autopsy. From this case he drew conclusions which stand with one other made by Webster,² so far as I am able to learn, as the only suggestions of the proper mode of procedure in this class of cases. Mr. Tait's suggestions are: 1. If a case of interstitial pregnancy be diagnosed before rupture (which he thinks is not possible), he would dilate the cervical canal, divide the septum separating the uterine from the gestation cavity, and empty the cornual cavity of the products of gestation, delivering them by the natural way. 2. In case of rupture into the peritoneal cavity Tait's suggestion is to perform abdominal hysterectomy promptly. He believes that in the case furnishing the specimen he examined this could have been easily effected.

Webster's suggestion is: "If the gestation were early it might be possible to remove the ovum and close the cavity very thoroughly in the manner recommended by Martin for the closure of the cavity in the wall of a uterus after enucleation of an interstitial fibroid."³

The following is a brief history containing the salient points of my case.

April, 1895, I was called by Dr. E. C. Reyer, of our city, to see Mrs. A., who, he stated, had ectopic gestation. Upon my arrival at 9 A.M. Dr. Reyer gave me the following history, viz.: At 4:30 P.M. the preceding day the patient, who thought herself two months pregnant, was suddenly seized with intense pain through the uterus and became weak. Dr. Reyer was summoned at 8 P.M. He found the patient in bed, markedly pros-

¹ Tait: "Diseases of Women and Abdominal Surgery," vol. i., pp. 481-486.

² Webster: "Ectopic Gestation," p. 217.

³ Ibid.

trated but not very anemic. There was no bloody flow from the uterus, but there were intermittent pains. The uterus was enlarged and seemingly pregnant. No tumor could be felt in the pelvis. The patient was thought to be pregnant, and fears were expressed by the physician to the friends that there was an abnormal gestation and that rupture had occurred. Quiet was enjoined and an opiate given. No alarm was felt by the family during the night. The following morning at 8 A.M. Dr. Reyer called and found the patient greatly prostrated and nearly pulseless. The abdomen was distended and a boggy feeling was elicited by digital examination per vaginam. We made immediate preparations for abdominal section, as it was evident that death would supervene within a short time if the internal hemorrhage was not arrested. We, however, feared the patient would die upon the table. We yet deemed it our duty to give her the slight chance of life an operation afforded. While preparations were being made about eight ounces of the normal saline solution were transfused into the cellular tissue of the patient in the inframammary region; strychnia and whiskey were given hypodermatically, and also nitroglycerin. The abdomen was opened by incision about 9:45 A.M. A large amount of blood was found in the abdominal and pelvic cavities. A portion of it was quickly removed and the uterus drawn upward near the incision. The Fallopian tube was found free and seemingly normal. The uterus was seen to be much enlarged, and there was found a rent in its walls upon the upper and posterior portion. Through the rent a portion of placenta was protruding. A slight oozing of blood was observed, and a small lacerated artery in the torn wall of the uterus was bleeding feebly. The artery was secured by catch forceps, and as we proceeded a moment or two to examine the case, to determine the line of procedure, Dr. Reyer, who had been administering the ether, announced to me he thought the patient dead. He had administered in all but four or five inhalations of the ether, and none at all had been inhaled during the last two minutes, so that the total collapse of the patient could not be attributed to the anesthetic. Artificial respiration was instituted, restoratives administered, and more salt water transfused, all to no purpose—the patient was dead.

A rapid examination of the pelvic organs was made. A ruptured gestation sac was found in the uterine wall of the right side. The canal of the cornual end of the right Fallopian tube

for a distance of half an inch was dilated and continuous with the gestation cavity within the uterine cornu. The walls of the cavity containing the ovum were uterine. There was an irregular rent in the upper posterior portion of these walls, from which there protruded a portion of the placenta. The membranes of the ovum and the decidua were within the cavity. The fetus was not found. The walls of the gestation sac in the region of the rupture were very thin, as were they also around the dilated portion of the tube. The tube beyond the dilated portion was normal in appearance and free. It seemed to me normal in length and but slightly, if any, increased in size. I inserted a finger into and through the rent into the cavity containing the ovum. It extended in toward the uterine cavity, but was separated from it by a thin partition.

Here is clearly a case of tubo-ovarian or interstitial pregnancy. How is it to be treated? Shall the bleeding point be tied, as is so often stated by the authors of journal articles? There is often not only one bleeding point, but several, and a placental surface that bleeds. There is no pedicle to be secured as in tubal pregnancy. There is an excessive loss of blood, so that the patient is profoundly shocked. There is a cavity of greater or less size extending into one horn of the uterus and containing the ovum in whole or in part. After the ovum is removed this cavity must be treated in such a manner as to prevent an accumulation of the broken-down tissue and exuded blood. We have then to consider, first, such an operative procedure as will induce the smallest loss of blood and the least degree of shock; second, our method must be such as will secure the patient against a subsequent rupture and the retention of exuded blood and broken-down tissue.

In some instances Tait's proposed method—viz., the removal of the uterus—will unquestionably meet all indications. Each operator will choose his favorite method. For myself, I should employ Baer's, as it requires the least time in my hands and yields the best results.

Cesarean section is attended by less shock and fewer deaths to the mother than Freund's or Porro's operation. I believe a method somewhat similar to Cesarean section should be adopted as superior to extirpation or amputation of the uterus in cases of ruptured interstitial pregnancy.

After opening the abdomen by incision and clearing away

enough of the blood to give a good view of the field, the uterus may be pushed up from below with a finger in the vagina or may be seized and drawn up with a tenaculum forceps.

The rent will usually be found above and posterior to the insertion of the Fallopian tube. If the opening caused by the tear of the uterine walls be sufficiently large, let the ovum, including fetus, placenta, and membranes, be quickly delivered. If the rent is not of sufficient size, enlarge it. A sufficiently large opening connecting this gestation cavity with the uterine cavity should be made. Ordinarily this can be easily accomplished, as these two cavities are separated by a thin membrane only. This membrane may be lifted up by forceps or tenaculum and incised or torn to a sufficient extent to make them as one. A rubber drainage tube and a strip of iodoform gauze should be passed from above downward through the uterine cavity and cervical canal into the vagina, the upper ends being allowed to remain in the gestation cavity. The further step of the operation will consist in closing the rent in the uterine wall. This may be done exactly as in case of Cesarean section—viz., with deep and half-deep interrupted sutures—or if the walls be very thin, as they were in my case, the rent may be closed, as in intestinal laceration, by Czerny and Lembert stitches.

Another procedure might have been practised in my case, and it would have been feasible—viz., the walls of the gestation sac surrounding the rent could have been stitched to the lower end of the abdominal incision and left open for drainage, and subsequently closed by deep sutures passed at the time of the operation. This procedure I do not consider of as great merit as the one previously described, for the reason that if successful the uterus would remain anchored to the abdominal wall and there would be danger of a resultant fistula.

Should the partition separating the uterine and gestation cavities be thick or ill-defined a sound may be introduced into the uterine cavity from below, so as to serve as a guide in the work of connecting the two cavities.

I wish to draw the following conclusions :

1. Ruptured tubo-uterine pregnancy is more frequently fatal than ruptured tubal pregnancy, for the reasons that in the latter case the rupture frequently takes place through the abdominal end of the tube, in which case but slightly vascular adventitious tissue is torn, while in the former case vascular uterine tissue is

torn; and, again, in tubal pregnancy not infrequently the rupture is through the inferior surface of the tube into the folds of the broad ligaments, and thus the amount of hemorrhage is limited, while in tubo-uterine pregnancy such a rupture is rare.

2. In ruptured tubo-uterine pregnancy before the fifth month, unless the abdominal section is done early, the anemia will be profound, so that the patient will be unable to withstand any operation involving prolonged anesthesia or manipulation. The operation should be as free from shock as possible.

3. There is no pedicle to tie.

4. All actively bleeding points must be secured by ligature.

5. Mr. Tait proposes hysterectomy as a proper procedure in such a case. Unquestionably, if the patient is not too greatly shocked or anemic, such a procedure would be clearly indicated.

6. As a measure attended by less risk of shock, the writer proposes the method above described—viz., the tying of bleeding arteries, clearing the gestation cavity of the ovum, the establishment of free communication between the gestation cavity and the uterine cavity, the establishment of free drainage by means of tube and gauze, and finally the closure of the rent in the uterine wall by deep and half-deep sutures or by Czerny and Lembert stitches; or, instead of this method of closure, the stitching of the walls of the gestation cavity to the lower angle of the incision, with drainage from above and through the uterine cavity, and final closure of the upper opening by tying deep sutures placed and left untied at time of the operation.

This latter method will probably be found applicable only in a limited number of cases—viz., in those where the uterus is freely movable and can be brought to the abdominal wall without tension.

Whether the methods proposed by the writer have ever been employed he does not know; and whether they will prove of value, only a trial of them can demonstrate.

249 NORTH ALABAMA STREET.

SUPPURATING BILATERAL PAROTITIS.¹

BY

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(With two illustrations and chart.)

As suppurating double parotitis following surgical operation is rare, I desire to put the following case on record.

Mrs. S., æt. 57. Complaining of uterine hemorrhage. She had passed the menopause several years and began again to lose blood from the vagina. On examination commencing carcinoma of the cervix was discovered and vaginal hysterectomy advised. On the 26th of June, 1895, the patient, having been placed under chloroform, was operated upon. The vagina was thoroughly douched with a solution of bichloride of mercury, by the nurse previous to the operation, and by myself at the time of the operation. A ligature having been placed through the cervix, the uterus was pulled down; the bladder was peeled off from the anterior surface of the uterus and was with difficulty avoided. The posterior cul-de-sac was then opened and the fingers passed in. The broad ligaments were ligated in sections with strong silk sutures and detached from the uterus and tubes. The uterus, tubes, and ovaries were then removed, the vagina was again douched with sterilized water and packed with iodoform gauze. No drainage tube was inserted. Patient left the table with a pulse of 76.

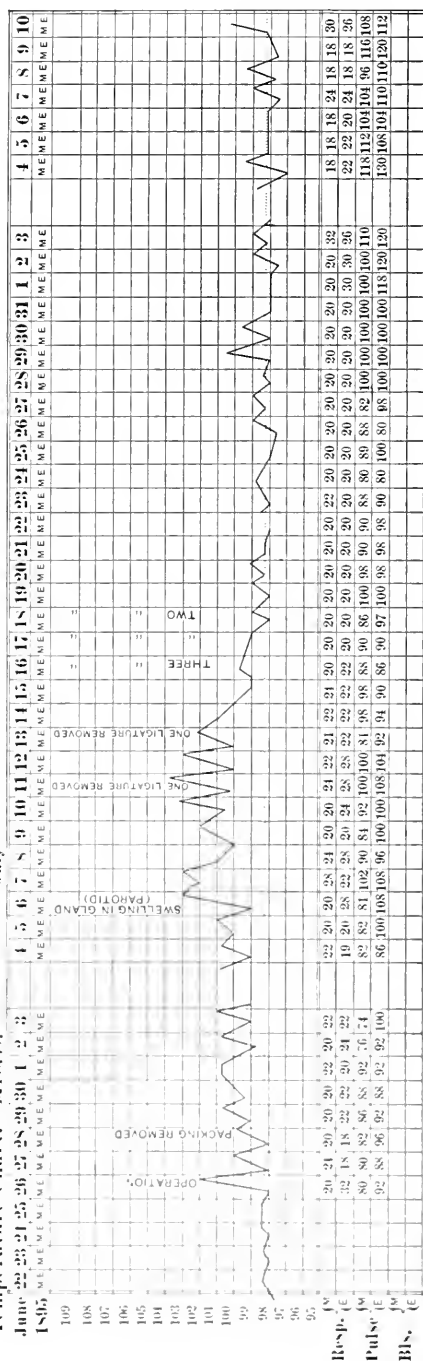
The packing was removed in forty-eight hours, when the vagina was douched with a solution of bichloride of mercury followed with sterilized water twice a day. On the afternoon of the tenth day subsequent to operation the temperature rose to 103°. Swelling in each parotid gland presented itself; the swelling gradually increased. The sides of the face became enormously swollen; the eyelids were puffed and the patient could scarcely open them.

On the fifteenth day one of the vaginal ligatures was removed. The temperature remained elevated, as shown in the accompanying chart, until the eighteenth day after the operation, when it

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

Temperature Chart. Mrs. S.

July



began to drop. The pulse during the days of the fever never ran higher than 108 per minute and averaged 90 per minute. On the nineteenth day three ligatures came away, on the twentieth three more, and on the twenty-first the last two were removed. Notwithstanding the swelling the temperature fluctuated between normal and 99° for twelve days longer, when it again became elevated on the thirty-third day after the operation. The edema of the face began to disappear, but the swelling of the parotids continued. No fluctuation could be made out, but, fearing a lodgment of pus in some of the deeper portions, a scalpel was passed down through each swollen mass; a little pus oozed out, but it was evident that each gland was honeycombed. On the twenty-fifth day after the operation a septic diarrhea set in. At this time large pieces of slough were removed. After all the sloughing mass had been removed a raw surface was left, extend-

ing two inches in front of the angle of the jaw and from two to three inches behind and beneath the ramus of the jaw. The ramus itself was almost laid bare; its outline could be seen distinctly.

In spite of the administration of stimulants and the ingestion of large quantities of milk and the administration of tincture of iron, the patient continued to do badly. All discharge from the vagina had long since ceased and, as already stated, all the liga-



tures had been removed. The abdomen itself presented no abnormal condition. The diarrhea remained obstinate and could not be controlled. The pulse began to rise two days before death, and the case terminated fatally on the forty-sixth day after operation.

For two days before death paralysis of the left side of the face and drooping of the left upper eyelid were noticed; the patient entered a semi-comatose condition and never again

gained consciousness. Unfortunately no post-mortem examination could be obtained.

This is the first case of vaginal hysterectomy that has died in my hands. The complication is, I believe, an unusual one, and for that reason I bring it before the Association.

Double parotitis is seen occasionally as one of the sequelæ of



the infectious diseases, a distinctly septic disease. It has been stated that, following surgical operations, double parotitis is not a septic disease. We know that there is a distinct connection between the uterus and the thyroid glands, and very likely a similar connection exists between the uterus and the parotid glands. In mumps we have an inflammation of the parotid

glands, and the most frequent complication arising in the progress of this disease is a development of orchitis and ovaritis. This fact certainly shows that there is a connection between the inflammation in the parotid gland and inflammation of the ovary and testicle. It is difficult to believe that the removal of the ovaries can produce a parotitis. Ovaries have been removed in such profusion in the last fifteen years that if such is the case we would be well aware of the fact. If parotitis has a peculiar tendency to follow the removal of the uterus, we should have sufficient data upon the subject to make us well aware of the fact.

I have seen single and double parotitis follow surgical operations and accompany the septicemia that sometimes follows miscarriage and labor. I have seen only the one case just reported of double suppurating parotitis. Double parotitis accompanied by sloughing of the glands must be a very rare affection.

It is not my intention to bring before you the literature of this subject. I am anxious to hear reported, in the discussion to follow, any cases of this disease that have occurred subsequent to abdominal operations.

481 SHERBORNE STREET.

INTRAPERITONEAL ADHESIONS.¹

BY

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ABDOMINAL surgery as it has been so extensively practised in the last few years has established, among other things, that many of the pains, vague uncomfortable feelings, and so-called dyspepsias are caused by adhesions of various organs in the abdominal and pelvic cavities. The organs in these cavities are particularly liable to become adherent to one another, because they all have, as one part of their peripheral structure, the peritoneum, a membrane very vascular and prone to adhesions and

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

fibrinous exudations. And when we say that organs in these cavities are adherent we mean that the peritoneum covering them is adherent. But though it is the peritoneum in each instance that is adherent, still the symptoms caused are those that pertain to the organ covered by the adherent peritoneum. In operating, for instance, to relieve ovarian pain, we not infrequently find the ovaries themselves not much changed, but bound firmly by more or less extensive adhesions; the adhesions being broken up, the pain is relieved. Of course there was an inflammatory process at some time to cause these adhesions, but in the course of time the adhesions seem to be the principal if not entire cause of pain. I have in mind a case I operated upon several years ago, expecting to find gall stones. There were attacks of pain at intervals of two or three weeks, at which time there was jaundice, and there was every reason to suspect gall stone. I found the gall bladder of normal size, and, though I could not feel stones through the walls, I incised it and explored its interior carefully. There were no stones. I found, however, extensive adhesions binding the duodenum and stomach to the posterior abdominal wall. Then, passing a probe into the duct, I found it patulous to within a short distance of the intestine; the duodenum was bound fast in such a way as to bend the duct and obstruct it. The adhesions were broken up, the wound in the gall bladder was closed, and the patient recovered and has been quite free from pain since. Operation was done November 25th, 1892. I presume there had been gall stones in this case and that the adhesions had been caused by their presence; but when I operated it was the adhesions which caused the trouble. After narrating this case to a well-known surgeon, whose name I shall not mention, he said: "The stone had ulcerated through the walls of the duct or bladder and was somewhere there, else how could the adhesions be there?" I think, however, that the frequent passage of gall stones, or even their presence with the congestion they may cause, would be sufficient explanation of the adhesions. Another frequent location of adhesions is the neighborhood of the appendix. They may be caused by inflammation of the appendix or as the result of an operation for appendicitis. Every case of laparotomy is probably followed by some adhesion of peritoneal surfaces. For example, in a recent case the operation of oöphorectomy was followed by a very severe and persistent form of cystitis and great pain in the

region of the stump of the left broad ligament. Two years after the first operation the abdomen was opened again (March 22d, 1895) and the colon found adherent to the bladder wall and to the stump of the broad ligament, the first adhesion accounting for the persistent nature of the cystitis, it having been caused and kept up, in all probability, by the transmigration of the colon bacillus through the walls of the intestine and bladder. The pain was caused by the tension at the point of adhesion to the stump of the broad ligament. The adhesions, formed from whatever cause, may be the occasion of pain and functional disturbance, not only by tension, as mentioned above, but by the formation of internal hernia, which may become strangulated. Two loops of intestine may become adherent so as to cause obstruction, or in such a manner as to favor volvulus. Pain in the female pelvis is not infrequently caused by adhesions alone, so far as we can judge by the look of the organs. It is frequently the experience of the surgeon that he opens the pelvis to see what may be the cause of the pain in the region of the ovaries—for he has not been able to make a diagnosis otherwise—and he finds apparently healthy ovaries, except that they are adherent. He either removes the organs or breaks up the adhesions and relieves the pain. The uterus is fixed in some abnormal position by adhesions; they are severed and the symptoms relieved.

Riedel, of Jena, presents an exhaustive paper on this subject.¹ He has evidently, from the number of cases he cites, had an extensive experience, and he treats the subject in a most interesting manner. He begins by stating that during the past year a great number of laparatomies have been performed on account of adhesions of the viscera, the existence of inflammatory bands in the abdominal cavity, and the kinking and narrowing of the intestines due to them. He states that most of the operations undertaken to remedy these conditions have been successful and that the good results have remained for months and years in a number of instances. In considering this subject one of the most obvious objections to operation would be the likelihood of a formation of new adhesions. Riedel admits that new adhesions are sure to be formed, but maintains that the symptoms caused by the original adhesions are almost invariably relieved; and my own experience is the same, though it is quite limited,

¹ Archiv für Klinische Chirurgie, vol. xlvii.

as far as those cases are concerned in which only adhesions have been divided and no tissue or organ has been removed.

Riedel mentions the following causes of adhesions in the abdominal cavity; they suggest at once the approximate locality in which they exist, except in the instance of contusion of abdomen and of detached lipomata: (*a*) contusion of the abdomen, (*b*) ulcer of the stomach, (*c*) inflammations about the gall bladder, (*d*) inflammations about the gall bladder and ascending colon, (*e*) inflammations of the gall bladder and vermiform appendix together, (*f*) inflammations of the vermiform appendix alone, (*g*) inflammatory processes in the colon, (*h*) lipomata that have become detached from their pedicles inside the peritoneal cavity. Besides these there are adhesions found in the pelvic cavity caused by (1) inflammation of the ovaries or tubes, or both, (2) inflammation of the uterus, (3) inflammation of and about the rectum, (4) inflammation of the bladder.

The question of diagnosis is often perplexing and in many instances impossible without abdominal section, but there are considerations which will aid materially. Wherever there is pain, and palpation does not reveal any tumor or other enlargement, adhesion is one of the possible causes. In obstruction of the intestines, for instance, if the cause be intussusception or the pressure of a tumor or of a fecal mass, it will be possible, very likely, to feel a mass. If, then, no mass be felt, the cause may be paralysis of the bowel, stricture, or adhesions. If paralysis be the cause no peristaltic action of the bowels can be seen through the abdominal walls, and it can be in the case of stricture or adhesions. It would probably be impossible to distinguish between these two conditions, though there might be a sensation of greater resistance on palpation in the case of adhesion. The localization of the adhesions is, of course, just as difficult as, and no more so than, that of stricture, and will often have to be done after the abdomen is open. I believe it to be eminently proper to subject cases of chronic dyspepsia, chronic and obstinate constipation, and cases of persistent pain which is caused by accumulation of flatus, after suitable medication has been used unsuccessfully, to exploratory opening of the abdomen to determine whether there be adhesions and for the purpose of severing them.

THE PREVENTION OF PELVIC INFLAMMATION IN WOMEN.¹

BY

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PELVIC inflammation in women, with all its attendant evils, accompanied by the greatest suffering, ending only on the operating table or possibly in death, is a disease that in a very large percentage of cases is preventable. This is a delicate subject to handle, and one which has not been much talked about outside of the profession. The time has arrived when it, with all its attendant evils, should be thoroughly discussed in a society like this, and through this society reach the medical profession at large. It is not necessary to say, in the presence of men engaged in this special work, that the operations necessary for the relief of suffering and saving of life in patients with pelvic inflammation are severe and attended with immediate and remote dangers to life. While the per cent of recoveries from these operations is something truly marvellous even to men engaged in this work, there must always be a mortality attending it. This is not all that might be said. Worse even than death, in many cases, is the knowledge on the part of the patient that she is maimed for all time and that she can never be a mother. Again, many of these patients, after submitting to the operation which all will grant was necessary to relieve suffering and save life, are invalids for months afterward. Not a few require years of time before their nervous systems readjust themselves to the point where the physician can declare that they are restored to health.

One of the most common causes of pelvic inflammation in women is septic infection following abortion. A septic endometritis following an abortion is not always cured when the patient is able to leave her bed. In a certain per cent of cases thus infected, after months of comparative health in which the patient is so near well that she thinks it is only a matter of a few weeks until she is restored to perfect health, she commences

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

to suffer with vague pains in the pelvis and slight backache, and she applies to her physician for relief from these pains and from the slight leucorrheal discharge. Upon examination it is plainly evident that the patient has a salpingitis which may go on to suppuration notwithstanding his well-directed treatment. A large per cent of cases suffering from septic endometritis have a salpingitis following it; A. Martin puts the number at forty-eight per cent of all cases. It is very easy to understand why this should be so, when we know that in all cases the inflammation extends along the tube by continuity. When the inflammation has once reached the fimbriæ and the ovary the peritoneal surfaces become agglutinated. In some instances the tube becomes fixed to the ovary, thus causing that organ to be subsequently infected, with suppuration of the ovary complicating that of the tube. In others the tube becomes sealed by plastic exudation and adhesions, shutting it off as a closed sac, and suppuration goes on until relieved by surgical measures. Just how many of these cases eventually come to the operating table for relief I am unable to say. In a large per cent of cases where the disease stops short of suppuration, the tube is adherent to the adjacent parts or the ovary is bound down by adhesions and the patient remains sterile. And in not a few instances the patient remains a semi-invalid the rest of her menstrual life. If we could have the correct statistics of the frequency of self-induced abortion in married women, I am convinced that we would be as much astounded as we were when Noeggerath first announced his conclusions regarding gonorrhea. We shall not enter into a discussion of the motives assigned as the cause of the abortion, for various reasons. But that this has always been a crime which was frequently committed, and one that appears to be on the increase, the medical profession know too well.

Another very common cause of pelvic inflammation is gonorrhea. We all know that a large per cent of women, outside of houses of prostitution, who suffer from gonorrhea contract it from their husbands. I have not seen any statistics worth quoting which would guide us to any definite conclusion as to its frequency in men. Every physician in our large cities knows it is one of the most common ailments among men before marriage. We must, therefore, rest satisfied for the present with looking at the views of others. Noeggerath, when speak-

ing of it, says: "I do not know what the state of matters is in other cities; I did not know how we stood in New York until I questioned the husband of every woman who came under my treatment. I believe we may apply here the dictum of Ricord that in every thousand men eight hundred have had gonorrhea." Again he says: "I believe I do not go beyond the mark when I assert that gonorrhea in ninety per cent of the cases remains uncured." In another place he says "that of every hundred women who have married men formerly affected with gonorrhea, scarcely ten remain healthy; the others suffer from some of the ailments directly attributable to this disease." These observations were made by Noeggerath in 1872 and have been much derided by the medical profession, but they were the result of his work, largely clinical, in a large city, among the poorer classes. I do not believe that the disease is anything like as frequent throughout the country as his statistics indicate. But since the discovery of the gonococcus by Neisser in 1879 a great number of gynecologists have investigated the frequency with which the diseases of gonorrheal origin occur in their patients. Strange as it may seem, the results strongly support the statements of Noeggerath.

After a woman is once infected the case follows one of two courses—a rapid course ending in suppuration in a few days or weeks, which is rare; the more common course is months and years of semi-invalidism, suffering great pain during the menstrual week, and ending finally in suppuration, necessitating one of the gravest operations in surgery. All of you know full well the dangers attending these operations, and it is not necessary to recapitulate them here.

It is not possible to give the mortality directly due to these causes, but it is certain that not a few women die from pelvic inflammation without operation. We also know that the death rate following these operations is as high if not higher than any other class of operations in abdominal surgery.

As intimated before, this is not the only objection to the operation. Many times in my experience have I had the patient say to me, and I believe truthfully, that she would rather die than get well and know that forever after she was a maimed woman. Especially is this true of those women who have never borne children.

Of the great number of abdominal sections made to-day in

this country, fully twenty-five per cent, if not more, are directly due to these preventable causes. If this be true it is high time for the profession to make renewed efforts for their prevention. You will ask how this is to be accomplished. I have not formulated a plan, further than to say that the work must be done by the medical profession. If a society like this indorses these sentiments it will exert a great influence upon the profession at large, and it will not be long until it bears fruit. The family physician must be the educator in this direction. Women should be told the dangers from septic infection following abortion. We, as a profession, have tried to prevent abortions by appealing to woman's higher nature, by holding up before her the enormous crime of killing the unborn child, but we have failed to stop the practice. We should appeal to her selfish nature as well and tell her plainly of the danger to her own health. I am convinced from personal experience that but a very small percentage of women have the remotest idea that there is any danger from an abortion before the third month of pregnancy. We, as physicians, know that it is from abortion in the early months that the patient incurs the greatest risk of septic infection. Our duty is plain here to educate women upon this point, and no false modesty should prevent the family physician from imparting knowledge, upon all legitimate occasions, upon this subject.

Again, the family physician should impart knowledge upon every legitimate occasion upon the subject of gonorrheal infection. He should instruct the parents of boys, and the young men themselves, of the great danger to the health of their future wives should they contract gonorrhea. When we appreciate the fact of the great delicacy and hesitancy on the part of parents in talking about these subjects to their sons, we begin to realize what an enormous subject we have before us. But it is a just and righteous one, and one that is bound to be thoroughly aired by the laity in the near future. The sooner the medical profession does its plain and whole duty in the matter, the better for us all. It is within the recollection of the majority of my hearers when we, as college students, were taught that gonorrhea amounted to but little more than a cold, and could be cured in nine days by a little balsam of copaiba and a mild astringent wash. We need not wonder at the position the laity take on the subject. These older teachings must be re-

vised, and the laity must receive instructions through the family physician. We should teach that gonorrhea is more destructive to woman than syphilis.

While on this subject we must not forget the duty parents owe their daughters as well. As sure as time, when the laity become educated upon this point, the parents and guardians of young girls will be as careful to inquire after the moral and social character of their daughters' suitors as they are now wont to do about the size of their pocketbooks. The former I think the more important, both as to comfort and happiness of the girls.

When the laity become educated upon this subject as the profession now understands it, the abdominal surgeon will make fewer sections for these preventable diseases than he is now doing, and a corresponding amount of misery and death will have been prevented.

628 ELM STREET.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

ABSTRACT OF THE PROCEEDINGS OF THE EIGHTH ANNUAL MEETING, HELD
IN CHICAGO SEPTEMBER 24TH, 25TH, AND 26TH, 1895.

First Day—Morning Session.

The Association met in the South Parlor of the Auditorium Hotel and was called to order by the President, DR. J. HENRY CARSTENS, of Detroit, Mich.

DR. W. E. QUINE, of Chicago, on behalf of the medical profession, welcomed the Association to the city, and the president responded.

DR. JAMES F. W. ROSS contributed a paper entitled

BILATERAL SUPPURATING PAROTITIS.¹

DR. EDWIN RICKETTS, of Cincinnati.—In connection with this case I want to report a similar one. Mrs. B., aged 32, mother of one child 4 years of age, consulted me in May. A diagnosis of salpingitis was made and the abdomen opened about the 22d of May. Patient otherwise in perfect health. The diseased appendages were removed. Ovaries were cystic. On the second day after operation a double parotitis made its appearance, although the operation was done as aseptically as possible. The parotid glands suppurated and had to be opened. There was

¹ See original article, p. 759.

never any tenderness of the abdomen. A glass drainage tube was used for thirty-six hours, and, the serum becoming straw-colored, it was removed. This patient had a tedious convalescence, but finally recovered.

DR. C. C. FREDERICK, of Buffalo.—I desire to report a case that I observed in the practice of a prominent operator in Buffalo a few years ago. It was a case of double parotitis following ovariectomy in which the woman made a good recovery. There was no suppuration in the case.

DR. JAMES F. BALDWIN, of Columbus.—A case occurred in my practice in which the inflammation of the parotid gland was limited to the left side. It followed a vaginal hysterectomy, coming on about the third day, accompanied by elevation of temperature, pain, and swelling, but did not interfere with the convalescence of the patient. Suppuration did not occur.

DR. WILLIS G. MACDONALD, of Albany.—This matter of parotitis associated with abdominal surgery or with operations in the vagina is not, I take it, altogether a new one. It presents itself somewhat differently in the case reported by Dr. Ross. Those of us who are familiar with the early history of abdominal surgery in this country will remember the exceeding gravity which was placed upon this complication. Among the earlier operators this was not an unusual or uncommon complication, only in this, that the patients usually died before abscess had an opportunity to form. I remember a similar case to the one reported which occurred in my early experience as a hospital surgeon, following a supravaginal hysterectomy. As soon as the swelling in the parotid gland showed itself the surgeon in attendance said to me that he had never seen a case like it before. "There is not a case in the history of medicine but what has died," and this case died. At that time it was a common and very fatal complication following abdominal operations. I have seen this condition come on after railway amputations of the thigh, particularly where the so-called conservative plan of treatment was employed, saving as much tissue as could be and amputating as low down as possible. I have seen this condition followed by suppuration, not often simultaneously in both parotids, but first one and then the other.

DR. JOHN M. AULD, of Chicago, had seen one case of non-suppurative parotitis, limited to one side, following a perineorrhaphy and hemorrhoids. The parotitis occurred on the left side and came on about the fifth day after operation with high temperature. The case is interesting because there was no sepsis in connection with the external wound.

DR. H. W. LONGYEAR, of Detroit, said he had nothing new to add in regard to parotitis after abdominal operations. The cases in which he had seen it were associated with typhoid fever. He offered the suggestion, in regard to sepsis, that the silk ligature favors the retention of septic germs.

DR. A. H. CORDIER, of Kansas City, Mo., agreed with the views of the essayist that this trouble was septic in character, but that it occurs with greater frequency than is supposed in connection with operations involving the removal of the uterine appendages, as the ovaries and Fallopian tubes. This suggests to us that there must be something else back of the septic origin of the disease, that there must be a sympathetic relationship between the ovaries and the parotid gland, and on account of the lowered resistance the septic material can gain a foothold more easily in the parotid gland than in other organs.

DR. A. H. FERGUSON, of Chicago, asked as to the condition of the patient's mouth at the time of the inflammation of the parotid gland which took place. He said we know that in scarlet fever, diphtheria, and a number of diseases which are associated with infection of the uterine appendages, extension takes place to the parotid gland. In such cases the mouth generally gets foul, and if it can be kept clean parotitis is not so liable to occur. He is inclined to think that the great majority of cases of parotitis are due to extension from the mouth.

DR. ROSS said, in reply to Dr. Ferguson, that it is well known the parotid glands, the thyroid glands, and the submaxillary glands have frequently become inflamed in the course of diseases that are likely to produce inflammation of the testicles; but as to their connection with inflammation of the ovaries we are not so sure. He could not say anything with regard to the condition of the patient's mouth at the time of operation, except that she had a swelling of one of the parotid glands and pus burst through it, burrowed behind the tonsil, coming out at the mouth. On the other side an abscess burst into the external ear and discharged itself in that way.

DR. A. B. MILLER, of Syracuse, N. Y., read a paper entitled

INTERMEDIATE TREATMENT OF PUERPERAL SEPSIS.¹

DR. LEWIS S. MCMURTRY, of Louisville, Ky., read a paper on

THE INDICATIONS FOR OPERATION IN PUERPERAL SEPSIS.²

DR. W. E. B. DAVIS, of Birmingham, Ala., believed that Dr. McMurtry was right in condemning the frequent use of the curette soon after delivery or after abortions. He thought it wise to swab out the uterus and use carbolic acid, but not to use a sharp curette. This treatment can then be followed by gauze packing, with or without dilatation. As to the cases of puerperal sepsis where the temperature runs high, they usually die in a week to ten days, and he believed surgery offers very little hope for such patients.

DR. HERMAN E. HAYD, of Buffalo, said the subject was an exceedingly interesting one, yet somewhat difficult in that it was

¹ See original article, p. 615.

² See original paper, p. 609.

no simple matter to prescribe any given line of treatment to meet the conditions which we ordinarily encounter in the puerperal patient. To say that the intrauterine douche had not saved a great many lives would be unreasonable, because he was satisfied there are many conditions of puerperal sepsis, and particularly if the septic condition be due to sapremia the result of breaking down of clots, where the intrauterine douche is all that is necessary and will unquestionably save life. Where a septic condition takes place in the endometrium, or where there remains a portion of the placenta which will break down, he was satisfied that in such cases the curette should be used—not a dull but a sharp curette, if it is used at all. With a sharp curette the surgeon can pick up a good piece of tissue and yet do very little harm.

DR. WILLIAM WARREN POTTER, of Buffalo, said the subject under consideration was many-sided. He was convinced, and his conviction was constantly being strengthened by increased observation and experience, that there is no puerperal fever except it be due to infection. He knew there were many excellent men of wide experience who were inclined to challenge that assertion, but if the history of so-called cases of puerperal fever was carefully traced the gynecologist would find underlying somewhere and at some point infection. This infection may be carried into the genital tract either by the obstetrician or it might be due to the environment of the puerperal woman; hence the great collateral interest lying closely alongside this subject was the one of preventive medicine. The important question was aseptic midwifery. If we knew absolutely how to practise aseptic midwifery in each and every case, there would be no puerperal sepsis nor would there be any ophthalmia neonatorum.

With reference to gauze packing, he said there were excellent men who believe in it, but there were certainly just as good men who consider it a very harmful procedure. He belonged to the latter class. If we pack the uterus we paralyze the muscular fibre, or prevent its acting to reduce the uterus to its normal condition or shut up the channels through which infection passes into the system. He would pack the uterine cavity lightly if he did it at all, after performing such an operation as in his judgment would teach him to be admissible in the particular case.

DR. W. P. MANTON, of Detroit, had never had in his private practice a case of puerperal septicaemia. He had only occasionally seen a case of puerperal septicaemia among patients in the higher walks of life, and those cases of sepsis that he had seen had been among patients who had been delivered by midwives, in squalid surroundings, and without any of the conveniences, the tenderness and care which such women should have. He thought statistics would show that puerperal septicaemia is on the decrease.

With regard to packing the uterus lightly with gauze for the purpose of drainage, he had maintained for a number of years that drainage was not the sole object of packing the uterus. Contrary to what Dr. Potter had said, gauze tightly packed in the uterus does not paralyze the uterine muscle, but stimulates it to contract and the entire organ is lessened in size; and, as is well known, a well-contracted uterus is not an organ which absorbs septic material. Of course we may get septic absorption from laceration of the cervix, etc.

He was interested in Dr. Miller's paper for the reason that the doctor's experience corroborated his own in the matter of treatment. He believed that if the curette is used properly it is absolutely devoid of harm, but in careless hands and used indiscriminately it is capable of doing considerable damage.

DR. H. W. LONGYEAR, of Detroit, believed that when the uterus is packed full of gauze it will prevent the flow of mucus, blood, and serum. While more or less serum may possibly come away, fragments of placenta or blood clots will certainly be retained. After treating the interior of the uterus his plan is to drain the uterine cavity thoroughly by means of a self-retaining tube or a few strands of stiff silver wire, which will keep the os open.

He believed the rules for operative procedures laid down by Dr. McMurtry were sound. If we cannot find any physical signs in the abdomen indicative of operation, then we should not perform it. Rise of temperature, etc., should not be an indication for surgical interference.

DR. WILLIAM H. MYERS, of Fort Wayne, Ind., emphasized the importance of differentiating between septicemia and pyemia in the consideration of the subject under discussion. Septicemia has no necessary connection with any local process. It is, therefore, not developed as pyemia. One condition is produced by the entrance into the blood of a certain quantity of septic material. These cases can be treated by medicines, perhaps by using large doses of quinine. He had in several instances effected a cure in cases of septicemia by the administration of large doses of quinine, but never in pyemia.

DR. C. C. FREDERICK, of Buffalo, had seen a good many cases of puerperal septicemia in consultation and in hospital practice in the last six or eight years. He believed Dr. McMurtry's position is correct when he says there are two distinct classes of cases of puerperal septicemia—first, those in which we have from the beginning intense sepsis without much local trouble; and, second, those in which we have a milder grade of septic trouble with greater local manifestations in the uterine wall, cellular tissue, or in the adnexa. He had never seen a case where it was necessary to insert gauze for drainage. Out of at least forty cases of puerperal septicemia which he had seen in consultation in the last eight years, only two had died. Both of

these cases had been of the intense, rapid form of the disease, starting rapidly from the moment of infection, although there was nothing in the uterus and hardly any localized symptoms.

Dr. JAMES F. W. ROSS, of Toronto, said the question of puerperal sepsis was one that took up at least three-fourths of the range of our abdominal work on women, together with gonorrhea. The discussion is of the greatest importance, inasmuch as we have at present a new craze that has seized the profession, that of taking out the uterus in cases in which it is unnecessary, in his opinion, to remove that organ. The pendulum had swung too far, as it did when the removal of the ovaries was undertaken for vague symptoms, and the Association should take some means of swinging it back again to its normal position. Dr. McMurtry's classification is a valuable one for us to remember and to keep constantly before us in our daily work.

The question of hysterectomy in such cases is one that is not yet settled. He believed that there are certain cases in which it is well to remove the uterus; but to take out this organ without having an opportunity of examining its surface is bad practice. He believed an exploration should be made through the abdomen, as we may find the tubes and ovaries perfectly healthy, or we may find pus tubes and yet the uterus may be in a healthy condition without any abscesses in it. In these cases the minor operation of removal of the pus tubes would be sufficient to cure the case and the woman would still have her uterus left behind.

With regard to Dr. Miller's paper, he thought packing and repacking of the uterine cavity a dangerous practice. He also condemned the too frequent use of the curette.

Dr. WILLIS G. MACDONALD, of Albany, said that after listening to the papers and the discussion a man would not be likely to go away with a clear, specific, and definite idea as to how he was to manage his cases in the future. There were some points in relation to the papers, pathologically considered, which were not very clearly demonstrated. During the last winter he was asked to go to see a patient with another physician one Sunday morning, and on arriving at the patient's home he found a temperature of 108.5°, pulse 160, the patient weak and had a chill. Within an hour the uterus was dilated; he took a sharp curette and cleaned out the cavity, then washed it out with a 1:1000 solution of corrosive sublimate, following it by the use of two or three quarts of normal salt solution. He introduced a two-inch iodoform gauze bandage of four thicknesses on the uterine sound to the fundus and let it come out at the cervix. The temperature in the afternoon was 99°, and never went above 100° again. The patient had an uneventful convalescence.

Dr. SHERWOOD DUNN, late of Paris, France, said that in the

Broca Hospital, Paris, there were one hundred and eighty-four beds, forty-eight of which were devoted to obstetrics. In his three years' connection with the hospital service there no case of confinement had ever been followed by any septic condition. But they also received into the service frequently women who, shortly after parturition, came there with a high temperature, rapid pulse, and all the evidences of improper care. That a woman in childbirth should have puerperal fever following her confinement is a disgrace to the physician that cared for her, as well as to the assistants he employed at that period. It is a fixed rule that the moment these women enter the service and it is discovered that they are free from accidents consequent upon parturition, they are immediately prepared, placed upon the table, and curetted with a large, soft-edged curette, which tells the operator incidentally as to whether or not there is septic material left behind, and never had he seen any evil results following that procedure.

DR. E. F. FISH, of Milwaukee, said in cases of uterine traumatism, especially in abortions, where there are retained septic tampons or bits of placenta within the uterus, it is absolutely impossible to curette them away with a dull instrument. He would no more think of using a dull curette in such cases than of suggesting to a barber the use of a dull razor. He had seen the dull curette used for half an hour at a time, and yet two days afterward pieces of membranes or clots had come away the size of a hen's egg. With a sharp curette everything can be removed.

As to drainage, if we have a large, flabby uterus which refuses to involute, he believed that thorough packing would cause contraction of the uterus.

DR. A. H. CORDIER, of Kansas City, Mo., laid stress on treating every case of puerperal sepsis as an individual one; and if we could not lay down fixed rules how to treat the condition, we should classify our cases and treat them according to the classification or particular type to which they belong. We must classify them first as those cases that follow immediately after labor, and those that follow several days succeeding confinement. We must recognize the difference between sapremia and true septicemia. Where surgical interference is called for in these cases it must be resorted to early if we expect to save lives. These patients should not be permitted to go on until they are thoroughly saturated with ptomaines or bacterial products, but should be operated upon early.

DR. G. E. KRIEGER, of Chicago, predicted that in time we will treat puerperal sepsis very much in the same manner as we treat diphtheria with serum, and experiments were being conducted at the present time with this end in view.

DR. J. HENRY CARSTENS, of Detroit, emphasized the importance of differentiating between the forms of infection. The

microbe in one form of infection seems to be entirely different from that in which we get sepsis from retention of placenta or other débris. Unlike some practitioners, he believed in auto-infection. With regard to the curette, a sharp one is not necessary for removing the shreds of membrane or other débris that may be left. A blunt one would answer the purpose, as by its use healthy tissue would not be removed. With a sharp curette we were liable to open up the lymph channels and blood vessels and thus make matters worse.

DR. F. BLUME, of Allegheny, said it was proven some years ago that in fifty per cent of healthy women there were found streptococci or other pathogenic micro-organisms in the vagina. Again, it had been proven that washing out the vagina, no matter how strong the solution may be, would not disinfect it unless the practitioner used his fingers and assisted in the cleansing process. For curetting the uterus he believed in using a sharp instrument.

The discussion was then closed by the essayists.

DR. MARCUS ROSENWASSER, of Cleveland, read a paper entitled

EXCEPTIONAL LOCATION OF THE BLOOD CLOT IN A CASE OF
RUPTURED ECTOPIC PREGNANCY.

Operating for free hemorrhage after tubal rupture, we find a mass of coagulated blood in the true and false pelvis and a mixture of fluid blood and clots distending the abdominal cavity. Operating for circumscribed hemorrhage, we find the blood mass gathered in the pelvis or even extending high into the abdomen, but limited or shut in by lymph-agglutinated viscera or by the separated folds of the broad ligament. The ultimate recovery of the patient whose history is to follow leaves as matter of conjecture the causes that prevented the blood from gravitating into the pelvis but led to its accumulation in the side of the abdominal cavity from iliac fossa to posterior diaphragm. The extreme reluctance with which the record of this case is presented at this time is overcome by reason of my inability to find a parallel in the literature at my disposal, and because of the hope that the knowledge of such possibility may prevent future confusion of an otherwise clear diagnosis. Drs. J. H. Lowman, C. B. Parker, and A. P. Ohlmacher assisted at various periods in sharing the responsibilities of the case.

Mrs. R., aged 37; married seventeen years; four children; regular since birth of last child, five years ago. Excepting a mild attack of typhoid fever four years ago, she has enjoyed excellent health. The last regular menstruation was on September 6th, 1894. The next period was missed, but a "flow" began October 11th and continued almost daily until the following five weeks. The discharge was at times quite free, sometimes offensive, but not attended by pain, except an occasional sharp twinge

attributed to the right ovary. There was much nausea and unusually severe vomiting. The uterus was slightly enlarged, cervix soft, patulous, easily dilatable. A rise of temperature on two previous days led to a curetting on November 16th, under the supposition that remnants of an early abortion required removal. This was done under chloroform. The uterus was four inches deep; the walls were soft and of a bluish hue. The curette brought away neither shreds nor granulation tissue. Suspecting an ectopic pregnancy, a careful pelvic examination was made, but, perhaps owing to the very thick abdominal wall or exceptionally misplaced tube, no tumor was found. It was supposed, therefore, that the ovum and its envelope had been overlooked in the discharges that had preceded the operative interference.

The curetting was followed by a mild pelvic peritonitis. The temperature rose to 101°; there was tenderness at the fundus, also pain in the rectum, even upon the passage of gas. At 2 P.M. November 21st the temperature was only 99°, but there was an uncomfortable sensation in the lower bowel, for the relief of which mineral water had been given. This was not retained. While retching the patient was suddenly seized with an agonizing pain in the abdomen, feeling as though she must die. Collapse rapidly followed—face drawn, eyes sunken, marked pallor, profuse sweat, cold surface and extremities, pulse almost imperceptible; she gradually rallied from the shock. The next morning the pulse was 100, temperature 100.5°. A tender and somewhat indefinite mass was to be felt in the abdomen to the right of the median line from the iliac fossa below to the hypochondrium above. The tenderness on the left was comparatively slight; abdominal distention moderate. It was deemed best under the circumstances to postpone a pelvic examination until the following morning, November 23d. The uterus was movable, enlarged, tender, in its normal position. Beginning at the right cornu and extending upward toward the iliac fossa was the ill-defined lower part of the mass, which filled the right flank, losing itself under the border of the liver. There was no bulging, thickening, or resistance in the recto-vaginal pouch, and none at the base of the broad ligament; nor did the rectal touch reveal any contraction in the lumen of the bowel.

The unusual absence of a circumscribed pelvic tumor, the development of an inflammatory mass in the side of the abdomen, and the fact that a mild peritonitis had preceded the collapse, cast a doubt over the *a priori* conclusion that the collapse had been caused by rupture of a tubal pregnancy. Neither in my own experience nor in my reading was the pelvic tumor ever missing when the blood mass had become circumscribed. Assuming that a miscarriage had taken place, could not the collapse have had its origin in the rupture of some recent intes-

tinal adhesions, inasmuch as a mild peritonitis was just subsiding and the collapse took place during a spell of retching and vomiting? Subsequent events furnish a most instructive and positive answer to this query.

As a result of the side tracking of the diagnosis, surgical treatment was temporarily discarded and the case was treated as a localized peritonitis. The latter continued during the next two weeks without causing alarm. The pulse ranged from 96 to 108 and the temperature from 100.5° to 102°. A right pleuro-pneumonia now rapidly developed, beginning at the base and ascending to the apex. The infection had evidently entered by way of the diaphragm. For the next two weeks the pneumonia was the prominent feature on the bulletin-board, with the peritonitis and its supposed exudate crowded into the background. Meanwhile the patient suffered intensely from a sharp, gnawing pain through the lower part of the right thorax and the entire right hypochondrium and loin. While the pneumonia was subsiding the pain continued, and was supplemented by daily recurrence of distinct chills and profuse sweats. She had had five chills, with pulse ranging from 116 to 128, when finally an indistinct deep fluctuation was detected in the abdominal mass. This was thirty-one days from date of collapse. An aspirator, introduced at the level of the umbilicus on a line from crest of ilium to lower ribs, brought away a fetid, meat-water-like fluid containing colon bacilli and pus. A free incision through two and a half inches of abdominal wall followed aspiration and gave vent to about three pints of most offensive decomposed blood and blood clots. No fetal remnants were found, despite careful search. The abscess cavity extended from the iliac fossa upward and backward under the liver and well toward the spinal column. It was drained by rubber tubes introduced in both directions. Convalescence was retarded and complicated by a fecal fistula which made its presence known about ten days after opening of the abscess, but fortunately closed within a month.

During the first three months after recovery the patient suffered considerable pain in the left side one week previous to menstruation. Within the last three months this pain has not recurred. The uterus is freely movable, in normal position; there is no palpable trace of previous disease. She has regained her normal weight and can run up and down stairs as well as she was wont to in days before. Her recovery is complete.

Dr. H. W. LONGYEAR, of Detroit, reported a case where a woman had been bleeding for several months. He operated, and thinks he would have saved her life had it not been for one complication—namely, the whole abdomen was filled with blood and clots of all ages, some of them partly organized and mixed up with the omentum, giving him great trouble in removing them. After a tedious operation he was compelled to close the

wound and still leave some of the clots in the abdomen. The patient died of shock some three or four hours after operation.

DR. JAMES F. W. ROSS, of Toronto, narrated a case of acute general peritonitis produced by the rupture of a suppurating clot. After an ectopic gestation this clot was found lying in the neighborhood of the broad ligament and was not in the least connected with the tube. He believed rupture had taken place several weeks before the patient had had the symptoms of it. The tube had regained its condition, and the clot was left in this position.

DR. EDWIN RICKETTS, of Cincinnati, said the cases reported impressed the gynecologist as to the importance of the earliest possible diagnosis in such cases. If we wait to find a lump through the abdominal wall we are many times misled; in other words, we have got to take the subjective symptoms and more carefully consider them.

DR. W. E. B. DAVIS, of Birmingham, related a case, the wife of a physician, who was delivered at full term of a uterine pregnancy. Then a mass was detected in the right lumbar region, which continued to grow larger, and the patient had the appearance of a woman losing blood. The operation revealed in this case ectopic gestation. The bleeding was easily controlled, a rapid operation done, but the patient died from shock. He also reported another interesting case.

DR. RUFUS B. HALL, of Cincinnati, emphasized the necessity of early operation in ectopic pregnancy, or at least an early exploration in all instances of obscure abdominal disease. He believed that where the tumor can be well defined and the clinical history is clear we are justified in making an exploration. He had had experience in dealing with delayed operations in ectopic pregnancy, and had made at least fifteen operations, and was more and more convinced every day of the necessity of early operative interference.

DR. THOMAS J. MAXWELL, of Keokuk, said these were very distressing cases to deal with, and it was often a difficult matter to know exactly what to do. He called attention to transfusion with the common salt solution to tide over severe cases of hemorrhage.

DR. ROSENWASSER said he had reported the case in order that others might not be misled as he was. If he had known what he knew now he would have resorted to an earlier operation.

DR. L. H. DUNNING, of Indianapolis, Ind., read a paper entitled

RUPTURED INTERSTITIAL PREGNANCY.¹

DR. T. J. WATKINS, of Chicago, had met with a number of cases of extrauterine pregnancy, but none of interstitial pregnancy with rupture. He had one case where the tube had

¹ See original article, p. 753.

nancy with rupture. He had one case where the tube had ruptured, the placenta had grown fast to the cornu of the uterus, and where it was impossible to form a pedicle, the conditions in that case being similar to those of an interstitial pregnancy. It was a question whether it was better to amputate the horn of the uterus or to do hysterectomy in his case. The Estlander method was resorted to, because in amputating the horn of the uterus great tension would have been produced upon sutures.

Dr. BYRON ROBINSON, of Chicago, was fortunate enough to examine a specimen of Mr. Tait. So far as operating on these cases is concerned, anything other than hysterectomy is death to the woman. In abdominal section the whole thing depends upon the condition of the patient. He thought any surgeon with good assistants could remove the normal uterus, but the main point was the condition of the patient.

Dr. HENRY T. BYFORD, of Chicago, said that while he had never met with a case of interstitial pregnancy, he desired to discuss the subject very briefly. With regard to hemorrhage, it was necessary to resort to radical measures to arrest it. In extrauterine pregnancy, or any other kind of pregnancy, the hemorrhage that follows is not dangerous; the arteries bleed for a while and then stop. But where the bleeding comes from the placenta, and it is not separated, it is going to continue until the parts where the placenta is located contract.

Dr. A. H. CORDIER, of Kansas City, Mo., had seen one case of interstitial pregnancy in the practice of Dr. Lanphear, and in addition to it the uterus contained several fibroids, so that it became necessary to do an abdominal hysterectomy as quickly as possible.

Dr. DUNNING said, in closing, that if the patient had lived for a little time he should have done hysterectomy; but he could not understand why we cannot sew up the rent in a wound with as great safety or freedom from hemorrhage as we could in Cesarean section, provided the insertion of the placenta is over tissue thick enough to contract afterward.

Dr. ERNEST T. TAPPEY, of Detroit, Mich., read a paper entitled

INTRAPERITONEAL ADHESIONS.¹

Dr. W. G. MACDONALD, of Albany, read a paper entitled

INTESTINAL OBSTRUCTION—CLINICAL OBSERVATIONS.

Intestinal obstruction is a condition of serious importance in surgery. In no other intra-abdominal condition is the mortality following operation as great, save in the severest types of sepsis. In no branch of abdominal surgery is precise diagnosis so difficult or operative procedures more taxing to the ingenuity of the surgeon. At the present time surgeons of experience are quite

¹ See original article, p. 763.

unwilling to give a definite opinion until the abdomen is opened and closed. Classification upon a purely etiological basis is of little or no value in the practical management of the disease. Clinically cases are either acute or chronic, and that has a serious significance in the prognosis. There is a large group of cases of ileus which may be regarded as purely symptomatic—a condition in which the continuity of the intestinal tube is uninterrupted, but the obstruction is due to conditions of paralysis in the intestinal wall.

The treatment cannot always be preventive necessarily, from conditions which arise during operations. The enucleation of pus tubes or an extrauterine pregnancy involves the leaving of extensive denuded surfaces to which intestines readily attach themselves, and those who have done secondary section can readily testify to the number of innocent adhesions found as a result of primary operations.

DR. HERMAN E. HAYD, of Buffalo, reported an interesting case of intestinal obstruction following a simple abdominal section.

DR. H. H. GRANT, of Louisville, exhibited and explained a device of his own invention for intestinal anastomotic work.

DR. A. H. CORDIER presented a specimen of post-operative intestinal obstruction which teaches the important lesson that the surgeon should not hesitate to reopen the abdomen as soon as he recognizes obstruction and save the patient's life. In this case it would not have been necessary to do a resection, but simply pulling the adhesions apart from the coil of bowel would have saved life. The small intestine had become adherent to the pedicle after a vaginal hysterectomy, and the patient died on the fourteenth day after the operation.

DR. H. W. LONGYEAR said the matter of intraperitoneal adhesions following operation was very important and could only be prevented by attention to detail in our work inside of the abdomen. Especially in regard to the treatment of the stump is this to be done, and also with reference to the treatment of old adhesions that are broken up. In the treatment of the stump there are two things necessary: 1. We should use a ligature material that will not prove to be an irritant after its usefulness has ceased as such. 2. It should be so applied as not to leave dead material at the end of the stump. He uses kangaroo tendon, which is absorbed after its usefulness has ceased. He applies it in such a way to the stump as will permit slight superficial circulation to take place, so that the stump will not be entirely strangulated.

DR. BYRON ROBINSON, of Chicago, said he had just finished one hundred and thirty consecutive autopsies at the Cook County Hospital, and the result was that in seventy-two per cent there was inflammation found around the cecum and appendix, sixty-six per cent around the gall bladder, seventy-five per cent in the pelvis, and eighty-two per cent in the mesocecum; conse-

quently he thought surgeons should be careful on which cases they operate. These autopsies were made on ordinary people who had died in the Cook County Hospital.

DR. A. GOLDSPOHN, of Chicago, called attention to the causes of peritoneal adhesions, which had been determined by very exhaustive and long-continued experiments on the lower animals by Dembowski, Walthard, Wegner, and others. These gentlemen came to the conclusion that the first and most important factor to bring about peritoneal adhesions is sepsis or septic infection; and, secondly, foreign bodies, as ligatures, gauze, sponges, drainage tubes, ligatured stumps, and searings as produced by the Paquelin cantery.

DR. J. B. MURPHY, of Chicago, complimented Dr. Maedonald on the pathology, the symptomatology, and treatment of ileus. Adynamic ileus is the form which has perplexed both physicians and surgeons for many years. In reading the histories of cases of ileus some physicians report thirty-four per cent of recoveries without operation; other practitioners report that one hundred per cent of the cases die without operation. Why? Because the gentlemen had different conditions to deal with. At the bedside the surgeon should examine a patient and be able to say which is a case of adynamic or dynamic ileus, or whether it is a case of mechanical ileus which demands immediate operation. He believed the surgeon is not justified in waiting, on account of the small percentage of danger attendant upon opening the abdomen to determine the existing condition.

DR. W. E. B. DAVIS said we may have a condition of mechanical obstruction unaccompanied by peristalsis. We have a great deal of difficulty in determining the cause of mechanical obstruction after abdominal operations. It is very hard sometimes to get the bowel to act after operations, even in favorable cases. With regard to adhesions, numerous experiments upon the lower animals had convinced him that adhesions do not cause the trouble we are led to believe by some writers. We can have the intestines agglutinated, as it were, without any symptoms.

DR. D. A. K. STEELE, of Chicago, said in cases of intestinal obstruction he favored the oblique incision to the right of the rectus, as it affords better access and exposes the parts that are invaginated or adherent more freely. He thinks the median incision does not afford the most ready access to the point we wish to relieve.

DR. L. H. DEXNING had operated for intestinal obstruction in eleven cases, of which number six died. All of the patients operated upon within two days recovered, and those operated upon later died. He considered time a very important factor.

DR. THOMAS J. MAXWELL related a case of mechanical obstruction in a man 25 years of age, the obstruction continuing for eight or nine days.

DR. TAPPEY could not see the applicability of Dr. Robinson's remarks to the subject under discussion. He (Tappey) did not advise opening the abdomen except for the relief of symptoms which warranted it. He would not think of searching for adhesions unless there were symptoms caused by them.

DR. MACDONALD, answering the point made by Dr. Steele, said the site of the incision was largely a matter of personal equation. In regard to the time of operation, alluded to by Dr. Dunning, abdominal surgery of any sort is not to be taken hold of by any slow schedule. The earlier we operate on cases of intestinal obstruction the more speedily we reach conclusions and the more patients we are bound to save.

Second Day—Morning Session.

DR. EDWARD J. ILL, of Newark, N. J., read a paper on

A CLINICAL CONTRIBUTION TO THE STUDY OF THE LATERAL
DISPLACEMENTS OF THE UTERUS.¹

VAGINAL HYSTERECTOMY VERSUS ABDOMINAL SECTION FOR PUS
TUBES.

DR. X. O. WERDER, of Pittsburg, opened the discussion on this subject. He dealt with

SOME OF THE ADVANTAGES OF, AND INDICATIONS FOR, VAGINAL
HYSTERO-SALPINGO-OÖPHORECTOMY IN SUPPURATIVE
PELVIC DISEASE.²

DR. JOSEPH EASTMAN, of Indianapolis, said he had been an advocate of vaginal hysterectomy for a number of years. Some of the gentlemen present had witnessed his operations. He had taken great pains to perfect instruments and methods for doing the operation, so that it might be made simple and successful. He had gone further than some surgeons, and in his last one hundred operations had seen the need of operating in the Sims' position, for in so doing he got the same advantages that he obtains from the Trendelenburg position—the floating away of intestines, omentum, and bladder, and the pubic bone is out of sight. The removal of the appendages through the vagina, through the posterior cul-de-sac, can be accomplished and yet the uterus be left. The uterus is an important organ and should be retained whenever possible.

DR. L. S. McMURTRY, of Louisville, addressed his remarks to some of the claims made for vaginal hysterectomy for the relief of inflammatory diseases of the pelvic organs in women. He thought the operation of vaginal hysterectomy was being abused as much as was the operation for removal of the uterine

¹ See original article, p. 690.

² Will appear in December number.

appendages when it was first introduced to the profession; hence pelvic surgery had suffered more in that respect than in any other. There is not sufficient discretion used in the selection of cases for operative interference.

DR. SHERWOOD DUNN, late of Paris, France, was called upon to demonstrate the technique and various steps of the operation of vaginal hysterectomy as it is practised by Prof. Richelot, of Paris. He said Prof. Richelot gives us a *résumé* of results in this operation that surpasses all others in abdominal surgery. From the 1st of February, 1884, to the 1st of May, 1895, Prof. Richelot told him in the presence of Dr. Cushing, of San Francisco, that he had performed one hundred and forty-four vaginal hysterectomies as they came to him for non-malignant diseases, without the loss of one patient. When Dr. Dunn first entered the hospital service in Paris he was opposed to hysterectomy. It appeared to him to be a brutal and an inhuman mutilation of those organs that are divinely destined to propagate the human race. His prejudices were nursed by being an assistant to one of the most celebrated laparatomists in Europe—Prof. Pozzi.

THE PRESIDENT then introduced DR. F. HENROTIN, of Chicago, who said that he believed he was the first to perform vaginal hysterectomy in this country, having performed it about five years ago in Chicago. The operation, however, was not original with him. He had seen it performed by the leading surgeons abroad and consequently he was only an imitator. Dr. Henrotin then advanced many reasons why the operation was a valuable one.

DR. W. G. MACDONALD, of Albany, said, with reference to vaginal hysterectomy, he could conceive of conditions, associated perhaps with suppurative processes, where it might seem advisable to operate by the vaginal route, but those cases did not occur so frequently in the country where he practised surgery as they evidently did elsewhere. A surgeon must cover considerable territory and must embrace in his consultation practice a good many hundred thousand people in order to do three hundred vaginal hysterectomies within a period of three or four years.

DR. RUFUS B. HALL, of Cincinnati, thought that for ordinary cases of inflammation of the uterine appendages, or a suppurating ovary with the uterine fixed and the pelvis matted together, the abdominal route promised even better results, both for the patient and the operator, than vaginal hysterectomy. Having made some sixty-five vaginal extirpations of the uterine, he knew the difficulties attending this operation as well as the average man; hence the average case promised better success, all things considered, by the abdominal route.

DR. JAMES F. W. ROSS, of Toronto, was opposed to the operation as outlined by Dr. Dunn. Granted that suppurating ovaries and tubes could be entirely removed by this method, there is no reason why any man should not operate in this way

as well as by the abdomen; but there is a class of cases in which these organs have to be left behind, and he considered that such cases could be better operated upon by the abdominal route, if the organs can possibly be taken out by this route. Large abscesses of the ovary he had drained from above, stitched the abdominal wall in the old-fashioned way, and had cured his patients. Such tumors or abscesses could not be removed by the vaginal route, on account of the impossibility of reaching the limits of the disease.

DR. J. B. MURPHY, of Chicago, said that in his early operative work he was a strong advocate of the abdominal route, but now he was wedded to the vaginal, and said if the members of the Association could only see Eastman, Richelot, Hartman, and others perform the vaginal operation they would wonder how they had worked so long and so hard in resorting to the abdominal method.

DR. WERDER, in closing, said that where both ovaries and tubes are to be removed he preferred vaginal hysterectomy in the majority of cases; but where there is any doubt as to the condition of one tube or ovary or there is a possibility of saving either one of these organs, he certainly thought the abdominal method is by far the best.

The PRESIDENT, DR. J. HENRY CARSTENS, of Detroit, then delivered his

Second Day—Afternoon Session.

ADDRESS.¹

DR. F. BLUME, of Allegheny, read a paper entitled

ETIOLOGY OF ECLAMPSIA GRAVIDARUM.²

DR. H. W. LONGYEAR, of Detroit, read a paper on

THE PROPHYLACTIC TREATMENT OF ECLAMPSIA GRAVIDARUM.³

DR. W. P. MANTON, of Detroit, read a paper entitled

SO-CALLED PUERPERAL ECLAMPSIA IN ITS RELATION TO INSANITY.⁴

DR. EMORY LANPHEAR, of St. Louis, Mo., discussed the treatment of eclampsia gravidarum. In his province as consultant it had been his fortune to see a number of cases of puerperal eclampsia, and in former years he confessed that when called to such a case he responded with some reluctance, but since the adoption of the treatment of which he would speak there is no case that he now responds to with greater alacrity and pleasure than one of puerperal convulsions. There are two classes of cases of puerperal convulsions, those which occur before the delivery of the child, and those occurring after delivery. He considered the treatment under four heads: (1) chloroform and chloral, (2) emptying the uterus, (3) purgation and venesection.

¹ See original article, p. 699.

³ See original article, p. 631.

² See original article, p. 638.

⁴ Will appear in December number.

tion, (4) intravenous injection of normal salt solution, Oij. ad Oij. (6 to 1000). It is generally admitted that the chief indication in cases of puerperal convulsions occurring before delivery is to dilate the os by the fingers or Barnes' dilator and deliver with forceps. In cases where he had not been able to dilate the cervix with sufficient rapidity he had adopted the expedient of seizing the anterior lip with volsella and cutting the cervix on both sides with scissors and using forceps. This procedure will enable the operator to introduce forceps with readiness in most cases. When it is impossible to dilate the uterus and we cannot deliver with forceps, he believed Cesarean section is justifiable in every case.

In the second class of cases, which occur after the delivery of the child, he had recourse first to the subcutaneous injection of pilocarpine; second, to the administration of chloroform and chloral hydrate; third, purgation with elaterin and venesection. The most important point of therapeutics is the intravenous injection of normal salt solution, which can be resorted to anywhere by any practitioner, especially if he has a hypodermatic syringe, a piece of clean paper to make a funnel, knife, and a piece of rubber tubing to connect the funnel with the syringe. This solution should consist of six or eight parts of salt to one thousand parts of boiled water. The injection should be repeated every three or four hours, if necessary. The obstetrician should watch the patient for thirty-six hours and repeat at the earliest indication of return of the convulsions.

DR. HAYD said we must not forget that many cases of convulsions occur where no albumin whatever can be detected in the urine after frequent examinations.

DR. FREDERICK in the last ten or twelve years had had charge of some two thousand cases of labor, and in no case which he had seen a week previous to confinement was there eclampsia.

DR. LONGYEAR emphasized, in the prophylactic treatment, the point of early delivery. We should be guided by the condition of the urine, and not by the symptoms of the patient.

DR. MANTON looked upon the nervous system as being largely responsible, both in the beginning and at the end, for puerperal convulsions.

DR. RUFUS B. HALL, of Cincinnati, O., read a paper on

THE PREVENTION OF PELVIC INFLAMMATION IN WOMEN.¹

DR. A. H. CORDIER, of Kansas City, Mo., read a paper entitled

DIAGNOSIS OF INTRA-ABDOMINAL TUMORS.

He said a correct diagnosis is especially desirable in abdominal surgery, for it is here that an error in an opinion bearing on the diagnosis, and bad judgment in resorting to surgical methods,

¹ See original article, p. 767.

are expensive to human life. In examining a patient the following methods and procedures should be followed: (1) inspection, (2) palpation, (3) percussion, (4) auscultation, (5) exploratory puncture (dangerous). We may in addition call to our aid the (1) microscope, (2) chemical reagents, (3) anesthetics, (4) photography, (5) illumination, and (6) distention with gas or liquids.

Tumors through which gases are detected by the gurgling indicate either an involvement of the bowel in the tumor or pressure of the growth on the bowel with adhesions to the same. Now, if this symptom be coupled with a history of a pyloric cancer or a cecal growth it is confirmatory in its indications. Some growths have a disposition to change positions, but all growths have one or more attachments, and it is safe to infer that this attachment is to the site at which the neoplasm had its beginning, and its movements will be only around an arc of a circle with the pedicle attachment to the *diagnostic point*. Adhesions may prevent a growth from moving, or may anchor a growth in a locality far from its original point of starting. The history of inflammatory attacks and the pain will come to our rescue here. The character of the pain and the amount and area of tenderness are invaluable aids. The withdrawal of free fluid from the peritoneum will often show the presence of a tumor before undetected. He knew of no condition requiring a more careful examination in order to decide as to whether all or part only of a fluid in the abdomen is free or enclosed in a sac. Tumors of the stomach as a rule develop in localities most accessible to the examiner—that is, in the anterior wall and movable extremity of the organ. Gaseous distention of the organ often determines the existence or absence of a growth in this viscus, and at the same time leads one step closer to a diagnosis by eliminating or confirming the stomach as a suspect. Discharges from natural outlets or fistulous openings should be examined most carefully, macroscopically and microscopically. The use of chemical reagents should also be resorted to in most instances where a doubt exists as to the exact character or source of the material being examined. By this precaution bile, urine, pancreatic and gastric juices, feces, etc., may be detected in fluids escaping from unnatural openings, the character of which could not otherwise be determined. Tumors of displaced or ectopic viscera require careful scrutinizing to avoid mistakes, but usually can be detected by recalling the natural site of the viscus and detecting its absence from its natural locality. Vascular tumors, aneurisms, and angiomas have characters peculiar to themselves, the pulsation being in unison with that of the heart. The fetal heart sounds are quicker and are of a somewhat different character, but should be thought of in examining a growth in the lower abdomen of a female patient. An enlargement of an organ due to an obstruction of its venous system

may simulate a neoplasm and thus mislead the surgeon, such being the case in splenic enlargements accompanying cirrhosis of the liver. Here a close inquiry as to the habits and presence of ascites, and often hemorrhages from the stomach, are diagnostic. A thorough knowledge of the anatomy and physiology of the nerve supply of a given locality is essential in correctly interpreting the significance of localized and referred pains. Localized tumors due to a dyscrasia, as syphilitic nodules of the liver, may be diagnosed both by the history and evidences of the constitutional disease in other parts of the body. To make a diagnosis in a consultation is often very hard, for it is here that one usually has the opinion of one or more practitioners as to the condition, they having examined the case before you are called. It is a good and proper practice for you to take the case for examination, as though you had not had an opinion expressed to you by any one. You thus go into the case, not with the conviction that you have this or that preconceived condition, but with the knowledge that something is wrong and the belief that you can find out for yourself what it is by a thorough and systematic examination such as the author advocates in this paper.

DR. JAMES F. W. ROSS, of Toronto, Ont., read a paper entitled

PNEUMO-PERITONEUM.¹

In the discussion, cases of pneumo-peritoneum were reported by Drs. JAMES F. BALDWIN, of Columbus, O., and WM. B. JONES, of Rochester, N. Y.

Third Day—Morning Session.

DR. W. E. B. DAVIS, of Birmingham, Ala., read a paper entitled

OPERATIVE PROCEDURES FOR THE RELIEF OF OBSTRUCTION OF
THE BILIARY DUCTS.

The author alluded to a large number of experiments which he had conducted on dogs, and in which he had tested the value of gauze in draining bile in injuries of the gall bladder and ducts. He reported cases where he had removed the gall bladder, without tying the duct, by packing with iodoform gauze. The animals got well. In other instances where he incised the gall bladder and ducts and packed with gauze around the openings, no stitches being used, the animals recovered. It was noted in those cases that there was complete walling-off of the general cavity when the abdomen of the animals was reopened. A number of cases were examined at the end of forty-eight hours. He also reported a case in which he had removed the gall bladder and a portion of the cystic duct in the human being where there was obstruction in the common duct, packed with gauze after introducing a glass drainage tube, and there was

¹ See original article, p. 710.

complete walling-off of the general cavity. Dr. Davis advises that in cases of obstruction of the common duct no attempt should be made to suture the opening after the obstruction has been removed, as the patient's condition is nearly always serious and a prolonged operation will terminate fatally. The obstruction should always be removed, if possible.

His experiments demonstrate conclusively that the peritoneum is capable of taking care of a small amount of bile, but that large quantities or the constant extravasation of it will produce a fatal peritonitis usually in twenty-four to forty-eight hours. He thinks the field of the operation of cholecystenterostomy is a very limited one.

Third Day—Afternoon Session.

DR. L. H. LAIDLEY, of St. Louis, Mo., read a paper entitled

SURGICAL TREATMENT OF PERFORATION OF THE BOWEL IN TYPHOID FEVER.

The author said that perforation of the bowel in typhoid fever was until recent years regarded as inevitably fatal, but this view is no longer entertained. A number of cases had been reported caused by Nature's process alone. Autopsies had been made proving beyond a doubt that perforation existed. Abscesses may form, emptying into the bowel or discharging externally. Usually, however, it ruptures into the peritoneal cavity, when death speedily ensues. Fortunately this is not frequent. Hoffman noted 20 in 250 fatal cases; Liebermeister in only 26, 3 recovering in more than 2,000 cases; Murchison 48 times in 1,580 cases; Greisanger 14 times in 118 cases; Flint twice in 73 cases. Murchison found in a total of 1,721 autopsies 196 caused by perforation, or 11.38 per cent. It is supposed to occur more often on the Continent of Europe than in this country. It is rarer in children than adults. It is not common after the age of 40. It has been met with at various stages of the disease, usually about the third week. After the middle or end of the third week it is probably always the result of the extension of the ulcerative process to the peritoneal coat. In a large proportion of cases severe diarrhea has preceded the accident. Just what cases to select for surgical procedure is still debatable. Whether all cases that give sufficient evidence of the presence of perforation of the bowel should not be explored and treated is a question yet to be settled. It is quite impossible to lay down definite principles to guide us in selecting cases suitable for operation.

The author detailed a case upon which he had operated. The patient rallied from the operation, but at the end of twelve hours died.

In reviewing the subject he concludes (1) that an early

diagnosis and operation offer the greatest chances for recovery; (2) if perforation of the bowel exists it is the duty of the surgeon to make an exploratory incision, close up the opening, and cleanse the abdomen; (3) that the more rapidly the operation is made in closing the perforation, which is usually single, and because of the danger in prolonging the operation, the better—it is advisable to look no further, but complete the operation as soon as practicable; (4) in selecting a method for the closure of the perforation a Lembert suture should be used in small openings; in the larger openings, when the lumen of the bowel is contracted by the use of the interrupted suture, resection with the use of the Murphy button is the most advisable. The author urges that greater interest be taken in educating the profession to endeavor to select these cases, many of which are overlooked, to be placed in the hands of the surgeon and thereby try and reduce the mortality less than one hundred per cent, which heretofore has prevailed.

DR. J. B. MURPHY made some remarks giving a synopsis of his paper on

TYPHOID PERITONITIS,

in which he said twenty-eight cases had been operated upon by different surgeons. A case reported by Dr. Van Hook, of Chicago, was the first to recover. Another case was operated on by Dr. Abbe and one by Dr. Ill, both of which recovered. He also reported cases operated upon by himself that recovered. Early diagnosis and prompt operative interference offer the best chances for recovery.

Papers were also read by DR. H. W. LONGYEAR, of Detroit, Mich., on "Kraurosis Vulvæ—a Contribution to its Pathology and Therapeutics"; by DR. C. C. FREDERICK, of Buffalo, on "Neurasthenia Accompanying and Simulating Pelvic Disease"; by DR. HERMAN E. HAYD, of Buffalo, N. Y., on "Large Hydro-nephrotic Cyst Simulating Ovarian Tumor; Abdominal Nephrectomy; Recovery"; by DR. WM. H. MYERS, of Fort Wayne, Ind., on "The Limitation of Craniotomy"; by DR. EDWIN RICKETTS, of Cincinnati, Ohio, on "Three Recent Cases in Gall Bladder Surgery"; by DR. WALTER B. DORSETT, of St. Louis, on "The Use and Abuse of the Uterine Curette"; by DR. THOMAS J. MAXWELL, of Keokuk, Ia., on "Some Anomalies Found in Abdominal Surgery"; DR. B. M. HYPES, of St. Louis, on the question, "Should Intrauterine Injections of Glycerin be used for the Induction of Labor?" and by DR. M. B. WARD, of Topeka, Kan., on "Has Gynecology Received Just Recognition as a Specialty?"¹

¹ All of these papers will appear in the December number.

REVIEWS.

THE SCIENCE AND ART OF OBSTETRICS. By THEOPHILUS PARVIN, A.M., M.D., LL.D., Professor of Obstetrics and Diseases of Women and Children, Jefferson Medical College. Third edition, pp. 684. Illustrated with two hundred and sixty-nine woodcuts and two colored plates. Philadelphia: Lea Brothers & Co., 1895.

The wide appreciation which has made a third edition of Parvin's "Obstetrics" a necessity may be traced in great measure to the author's direct and graceful style, his great bibliographical knowledge and extended personal experience—factors which have enabled him to make the work not only a reliable and practical guide for the student or practitioner, but a book which one reads with ease and pleasure because of its literary excellence, the purity and simplicity of its diction, and the feeling, which grows as the pages turn, that it is the work of a master.

The present edition shows careful revision. Much has been entirely rewritten, many new illustrations have been introduced, and the order of the sections changed to follow the natural sequence employed by the author in his lectures. Under this plan, which is certainly comprehensive and scientific, the subject is divided into two parts, the first including the physiology and the second the pathology of pregnancy, parturition, and the puerperal state. The changes in the first part are of a minor nature, while the second includes all the important surgical and therapeutical advances which have been made since the appearance of the second edition five years ago.

B. H. W.

PRACTICAL DIETETICS. With Special Reference to Diet in Disease. By W. GILMAN THOMPSON, M.D., Professor of Materia Medica, Therapeutics, and Clinical Medicine in the University of the City of New York. Illustrated with nine plates, pp. 802. New York: D. Appleton & Co., 1895.

This book will win for itself an appreciative reception on account of its intrinsic worth, aside from the advantage it possesses in treating of a subject usually dismissed, in works on therapeutics or practice or in our medical colleges, with a few chapters or lectures, as the case may be, or, in the words of the author, "with such brief and indefinite phrases as 'A proper but restricted diet is recommended,' and such favorite if not convincing expressions as 'The patient should be carefully fed.'" Every detail of the subject is so thoroughly elaborated as to

make this work practically an encyclopedia of dietetics. Its arrangement, however, is so systematic and the sequence of subjects treated so logical as to render it both interesting and instructive for continuous reading, as well as an exhaustive work of reference for consultation in regard to the effects of food and the dietetic treatment indicated in any particular disease. Its utility as a reference work is greatly enhanced by the excellence of the classification, accentuated by the typography.

The subjects of food and food preparations, stimulants and beverages, are most fully treated, and, followed by chapters on cooking, the preparation and preservation of food and the quantity required, digestion of food and the conditions affecting it, serve as a foundation for the rest of the volume. A portion devoted to the general relation of food to special diseases, diseases caused by dietetic errors, and methods of administration of food for the sick, naturally introduces what forms the body of the work, the subject of diet in individual diseases, this being treated systematically under the heads of the affections of the various systems and organs. The author does not commit the error of merely laying down hard-and-fast rules for the government of diet, but includes in closing an extended part descriptive of the dietaries of hospitals, prisons, the army and navy, and other institutions. The impression of the excellence of arrangement which is formed at first sight is increased by a thorough perusal of the work.

H. D.

DR. WILLIAM SMELLIE AND HIS CONTEMPORARIES. A Contribution to the History of Midwifery in the Eighteenth Century. By JOHN GLAISTER, M.D., Fellow of the Faculty of Physicians and Surgeons of Edinburgh; Diplomate in Public Health, Cambridge; Professor of Forensic Medicine and Public Health, St. Mungo College, etc., Glasgow. Pp. 369. Glasgow: James Maclehose & Sons, Publishers to the University, 1894.

Whether considered as the biography of a medical man whose services to the profession entitle him to distinction and gratitude, or as the history of an interesting period in the art and science of midwifery, the work before us equally commands attention and praise. The style is clear and concise, characterized by dignity, candor, and fairness, and expressed in pure, vigorous English. The author is evidently deeply interested in his subject and an admirer of the man of whom he writes, yet we find in his pages no trace of adulation, no fulsome tributes to his merits, no invective against his enemies and detractors. The facts of his career are simply stated, and should here and there a claim have been made upon Dr. Smellie's behalf which seems to Dr. Glaister to be unwarranted, he is as ready to call attention to this fact as to anything redounding to the great accoucheur's credit. Such a spirit of impartiality is as rare as it is

essential in the biographer, and one is glad indeed to recognize and pay tribute to it.

William Smellie was born in Lanark, Scotland, in the year 1697, and died in 1763. A slight sketch is given of the early days of his medical career both in London and Lanark, and of his visit to Paris. Obstetrics very soon attracted and then absorbed his attention, and his chief work was done in that field. Midwifery was almost altogether in the hands of midwives, then, as now, uneducated in medicine and only partially educated in their special branch. In Paris, as at the present date, they were obliged to pass an examination in midwifery and receive a certificate of approval before venturing to practise; but, according to Dr. John Douglas, who wrote in 1736, in London "they permit every silly woman who takes it into her head, with very little or no instruction, to practise *impune* among His Majesty's subjects without any the least examination or license."

Normal cases did well. Abnormal presentations and the various complications of pregnancy and labor seem to have been regarded in the light of providential occurrences not to be tampered with by mere mortals, or else to have led to clumsy and barbarous efforts at relief. The laws of obstetrics were not in the least understood, or rather were completely misunderstood; superstition in regard to this process of Nature ran riot, and writers upon the subject occupied themselves with highly scientific and important discussions as to whether it were possible for women to bring forth rabbits, or whether the Countess of Holland could have been delivered of three hundred and sixty-five children at one birth. Dr. Smellie was not the first to attempt to introduce a little light into the darkness, a little system into chaos, but he devoted himself with zeal to his chosen line of work, leaving it upon a far higher plane of knowledge than he found it.

It is amusing and interesting to note that the chief struggle of Dr. Smellie and other obstetricians of the male sex was to obtain a foothold in the practice of midwifery. And a veritable struggle it was, a perfect tempest being raised about the heads of the daring innovators. A certain noted and successful midwife prefaces a pamphlet directed against the growing practice of man-midwifery with the words: "I own, however, there are but few midwives who are sufficiently mistresses of their profession. *In this they are some of them but too near upon a level with the man-midwives, with this difference, however, in favor of the female practitioners, that they are incapable of doing so much mischief as the male ones, oftenest more ignorant than themselves, but who, with less tenderness and more rashness, go to work with their instruments.*" The Bible is quoted in support of the view that women only should be accoucheurs, and she asserts that "the native inconsistency and levity of the French nation opened the first inlet in these modern times to

men-practitioners." "Men-midwives," she states, "have been the death of more children than they have preserved, and they are stiff, perfunctory, ungainly, and maladroit in the practice."

How Dr. Smellie became a celebrated accoucheur in spite of all this opposition, how his skill and patience overcame obstacles and his success silenced his critics, may be read in these entertaining pages. Here, too, are chronicled the benefits which he rendered to science, thanks to his habit of studying from Nature instead of from books and to his custom, then a new thing, of keeping case books. His doctrine of the mechanism of parturition Dr. Glaister calls the "keystone of modern midwifery"; he made original researches into the diameters of the pelvis and the fetal head and into the posture and position of the fetus; he first contradicted the universally believed doctrine that an eight months' fetus had less chance of life than a seven months' child; he taught that a pregnancy may normally exceed the period of nine months, and opposed the received idea that the placenta is always situated in the fundus uteri; he contributed valuable information as to the position of women in labor in various countries, and studied into the question of placental delivery. His discoveries upon the mechanism of labor re-established the use of the forceps; he was also the first to lay down rules as to the use of this instrument, for which he invented the lock. In his book he discourses upon hemorrhages, abnormal presentations, and the management of the post-partum period. He gives a picture of the ideal accoucheur, in whom he requires a competent knowledge of surgery and physic, careful instruction under a master, and practice upon proper machines to learn the use of forceps and crotchets, turning children, etc., etc. He goes on to say: "But over and above the advantages of education he ought to be endowed with a natural sagacity, resolution, and prudence, together with that humanity which adorns the owner and never fails of being agreeable to the distressed patient; in consequence of this virtue he will assist the poor as well as the rich, behaving always with charity and compassion. He ought to act and speak with the utmost delicacy of decorum, and never violate the trust reposed in him, so as to harbor the least immoral or indecent design; but demean himself in all respects suitable to the dignity of his profession."

It is a temptation to quote more at length from this admirable book, but enough has been said to show that not only the matter but the manner will repay careful reading, and that Dr. Glaister has contributed a valuable work to medical literature.

A. R. S.

ABSTRACTS.

1. EUSTACHE, G.: OBLITERATION OF THE CERVIX AT THE MOMENT OF LABOR (*Nouvelles Archives d'Obstétrique et de Gynécologie*, March, 1895).—Obliteration of the external orifice is attributed by different writers to organization of the plug found in the cervical canal during pregnancy, the formation of a membrane between the lips of the cervix, and to the increased vitality and circulation of the gravid uterus predisposing to morbid conditions leading to the obliteration. In some cases the cause is unknown.

Nothing can cause a suspicion of this lesion during pregnancy. It can be diagnosed only during labor. If the course of labor has not been carefully watched the distention and thinning of the cervix may be such that the sutures and fontanelles can be felt, and has led to a belief that dilatation was complete and to application of forceps to the uterus itself. A careful exploration of the cervix by the hands or the speculum should be made in cases of prolonged labor with absence of liquor amnii. An opportunity should be given for uterine contractions to overcome the obstacle, though eclampsia or uterine ruptures have followed too great delay. When labor has lasted several hours without progress, with engagement of the fetus in the middle or lower portion of the cavity and distention of the cervix, or when the child's life is in danger, an opening should be made at once, at the cervix if its situation can be ascertained, otherwise at the point of election. With the finger pressure is exerted and scratching with the nail, principally at the moment of contractions, and the opening thus made is increased by the fingers. If unsuccessful the grooved sound may be used, and if this fails the bistoury must be employed with the aid of a Sims speculum. The incision is transverse, one and a half centimetres in length, and carried gradually through into the uterine cavity and enlarged by the finger. Other incisions may be required. Delivery may occur without laceration, or with a tear which in no recorded case has extended beyond the vaginal portion of the cervix.

H. D.

2. LABUSQUIÈRE, R.: THE NATURE AND TREATMENT OF OSTEO-MALACIA (*Annales de Gynécologie et d'Obstétrique*, May and June, 1895).—Labusquière, in a general review of this subject, reaches the following conclusions:

The pathology and nature of osteomalacia are still an open field for observation. Fehling's theory, if liable to various objections, is worthy of giving a certain direction to new re-

searches. The etiology of osseous softening seems to be not always the same.

Medical treatment has procured a certain number of cures, so in all cases which are not pressing this should be tried. It is especially indicated in the stages in which the disease is, so to speak, in a state of outline. Furthermore, it must not be forgotten that this medical treatment—even that contrived by Petrone (chloral hydrate or chloroform)—has succeeded sometimes in advanced forms of the disease.

In the case of a woman not pregnant, in whom the disease has resisted all medical treatment and whose consequences are for any reason intolerable, bilateral castration must be performed. In such conditions as extreme friability of the tissues uterovarian amputation is particularly indicated.

In a pregnant woman it is rarely necessary to induce premature labor. If it is needful and the uterus is emptied in time the conditions would be the same, if the osteomalacia survived the interruption of the pregnancy, as in the case of a woman not pregnant. In general, if there is not danger of the disease compromising the life of the mother, one is led to allow gestation to go on to term, and then a decision must be made between the Cesarean operation and that of Porro. The advantage seems to rest decidedly with the latter.

H. D.

ITEMS.

DR. W. W. RUSSELL has been appointed Associate in Gynecology, and DR. THOMAS S. CULLEN Instructor in Gynecological Pathology, in the Johns Hopkins University, Baltimore. DR. OTTO RAMSAY has gone to Freiburg for a year to study gynecological pathology under Prof. E. Ziegler.

THE permanent committee of the INTERNATIONAL PERIODICAL CONGRESS OF GYNECOLOGY AND OBSTETRICS has organized its *second session*, which will convene in Geneva during the *first week of September*, 1896. The following is the official programme:

Gynecology.—I. Treatment of Pelvic Suppurations. Referees: Dr. Bouilly, Paris; Dr. Kelly, Baltimore; Dr. Zweifel, Leipzig. II. Surgical Treatment of Uterine Retrodeviations. Referees: Dr. Küstner, Breslau; Dr. Pozzi, Paris; Dr. Polk, New York. III. What Method of Closing the Abdomen presents the best Guarantee against Abscesses, Eventrations, and Hernias? Referee: Dr. Granville Bantock, London.

Obstetrics.—I. Relative Frequency and most common Forms of Pelvic Contractions in different Races, Groups of Coun-

tries, or Continents. Referees: Dr. F. Barnes, London; Dr. Dohrn, Königsberg; Dr. Fochier, Lyons; Dr. Kufferath, Brussels; Dr. Jentzer, Geneva; Dr. Lusk, New York; Dr. Rein, St. Petersburg; Dr. Pawlik, Prague; Dr. Pestalozza, Pavia; Dr. Treub, Leyden. II. Treatment of Eclampsia. Referees: Dr. Charles, Brussels; Dr. Charpentier, Paris; Dr. Halsbertsma, Utrecht; Dr. Löhlein, Giessen; Dr. Mangiagalli, Milan; Dr. Parvin, Philadelphia; Dr. Smyly, Dublin.

As indicated by the number and choice of referees, the committee, desirous of provoking upon certain questions investigations and debates as general as possible, has endeavored to present the opinions of the principal schools for discussion.

Members of the profession are invited to honor the Congress with their presence and take part in its discussions or read original communications. Switzerland, and Geneva particularly, has always felt especially honored when scientific men have seen fit to hold conference there. The welcome that has always been extended to them in the past by the authorities, the population, and their colleagues is a guarantee that the reception which will be given next year will be worthy of their traditional hospitality. The Committee of Organization will make all preparations that will assist members of the Congress and their families in combining their journey to Geneva with other excursions in different parts of Switzerland. In making application for membership give name and address in full, as well as all titles.

REGULATIONS OF THE CONGRESS.

Article 1. The International Periodical Congress of Gynecology and Obstetrics comprises founders, permanent members, and members inscribed for one session. The founders and permanent or life members pay a single initiation fee of three hundred francs (about fifty-nine dollars), which absolves them from the payment of any future dues. Members only inscribed for one session pay a fee of thirty francs (six dollars), upon the receipt of which they will receive a card of membership to the Congress, entitling them to all privileges during that session, as well as a copy of the Proceedings of the Transactions of the Congress. Founders and life members must prove acceptable to the Central Committee on Organization before being regularly inscribed. Gynecologists and obstetricians whose names are accepted by the Central Committee, and whose applications are received before the date of meeting of the coming Congress, will receive the title of founders.

Article 2. Members of the Congress desirous of taking part in the discussions of the questions of the official programme are requested to inform the Secretary before the 5th day of July, 1896, stating definitely the questions they desire to discuss.

Article 3. Members desiring to present to the Congress origi-

nal communications must forward the complete explanatory title of the same to the secretary before May 5th, 1895.

Article 4. Unannounced discussion of any paper will be limited to five minutes. Debaters formerly inscribed in accordance with Article 2 will be limited to ten minutes.

Article 5. All oral or written communications must be in English, French, or German.

Article 6. All manuscripts must be handed in to the secretaries at the end of the session during which they have been read, and debaters who have taken part in the discussions will be kind enough to remit to the secretary a *résumé* of their discourse.

Article 7. All communications to the Congress will be transmitted to the secretary-general. The Committee of Organization, which resumes its functions, immediately after the end of the Congress, to proceed to the publication of the Transactions, will be privileged to decide upon the partial or total insertion of these communications.

Article 8. Students of medicine will be able to obtain cards of admission upon presentation of their proper credentials, but will not be allowed to participate in the discussions.

Article 9. An exposition of gynecological and obstetrical instruments will be exhibited in the *local* of the Congress.

P.S.—The sessions of the Congress will take place in the University halls placed at our disposition by the Department of Public Instruction. Sessions will continue from 9 to 11:30 A.M. and from 3 to 6 P.M. Morning sessions will be devoted to original communications; those of the afternoon to the official programme. If necessary the committee will decide upon the forming of sections. The date and location of the next Congress will be decided by vote after the termination of the last session of the present one of 1896.

The General Secretaries are: DR. BETRIX, for gynecology; DR. CORDES, for obstetrics. Treasurer of the committee, DR. BOURCAUT.

The Secretary-General for North America, through whom all correspondence and business will be directed, is DR. FERNAND HENROTIN, 353 La Salle avenue, Chicago, Ill.

THE AMERICAN JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

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ORIGINAL COMMUNICATIONS.

THE SURGICAL TREATMENT OF HEMORRHOIDS BY EXCISION
AND CLOSURE WITH THE BURIED ANIMAL SUTURE.

BY

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In the evolution of modern surgery it is an interesting study to observe the gradual and almost complete elimination of methods in surgical procedure which, at not a remote period, were considered indispensable and final.

Thus we note the relegation of the cautery, accompanied by the condemnation of the barbarous methods under the sway of which, at an earlier period, every variety of wounds were treated.

The use of the ligature for the constriction of structures, to cause their necrosis and elimination by suppuration, has been abandoned as equally unsurgical and unscientific. The last stronghold in which these methods have found refuge is their fundamental entrenchment in the rear of the column; and it is almost only in the treatment of hemorrhoids that any of the surgeons of the present are found still clinging to these procedures of the fathers.

It is in the conscientious belief that other and better measures should be substituted, here as elsewhere, for the cure of one of the most common and troublesome of the diseases usually classed as belonging to minor surgery, that I offer this contribution.

The causation of the ectasic condition of the hemorrhoidal veins is an interesting study, especially so since in no other part of the body do we find similar conditions or results.

It is important to remember that the arteries in the lower portion of the rectum descend vertically in parallel lines toward the anal aperture in the connective tissue between the mucous membrane and the muscles. The subdivision is by short branching vessels, and the blood is received through the capillaries into an extraordinary network of veins which empty through the inferior mesenteric into the portal system. These veins are entirely without valves. The absence of valves has been adduced as evidence that in the earlier period of the developmental series man did not maintain the upright posture, and many authors, from Morgagni and Boerhaave to the present, have found in this evidence why quadrupeds are not subject to hemorrhoidal diseases. It seems, however, a just criticism that the weight of the venous column alone acts only in a very subordinate degree as predisposing cause, although manifestly an important factor after the blood current becomes greatly retarded in the oftentimes enormously dilated hemorrhoidal veins. Were the cause to be found in this peculiar disposition of the portal circulation, the upright position of man would make this condition the rule rather than the exception, and it would be indeed extraordinary to find the varicosities limited to the hemorrhoidal plexus and lying almost entirely external to the sphincter muscle. Oftentimes, however, after the pathological condition has become well established, the current through the ectasic vessel is so greatly retarded by the weight of the blood column in the erect position that most invalids learn to seek relief from change of posture.

In the relation to the surrounding pelvic organs the hemorrhoidal vessels occupy a dependent position, and their only support is derived from a loose network of connective tissue. It is apparent that the anatomy of these thin-walled vessels, their relation to the surrounding parts, and their physiological function furnish, as it were, a predisposing cause of disease.

To this very probably may be added individual structural weakness, as is often exhibited in persons with thin-walled veins of the lower extremities.

It has long been recognized that the varicosities of the hemorrhoidal vessels, which are wanting in the lower animals, are comparatively rare in the savage races, and become in a considerable ratio a more and more constant factor in the sedentary occupations pertaining to modern civilization. A great variety of pelvic diseases in the female, and the genito-urinary diseases in the male, complicated with constipation, are in a large measure active causes.

The rectum may be viewed as a convenient cesspool for the more or less constant reception of the waste and worn-out débris of the alimentary canal, which is ever poured into it in a semi-fluid state. The curves of the lower bowel, from the sigmoid flexure downward, are an evident design, in part at least, to vary the support of the weight of the column, and are admirably adapted to deflect and equalize the pressure. To still further aid, that portion grasped by the sphincter ani is firmly held in the levator loop, and by it is carried upward and forward, thus taking the weight of the mass in a large measure off from the anal outlet.

When the rectal contents remain sufficiently soft to produce everywhere equable pressure, the circulation is comparatively little disturbed and defecation is accomplished with very little muscular effort. Let retention of the contents, with absorption of the fluid portion, go on until the moulding process becomes one of difficulty, and the reverse is true. The overloaded rectum produces pressure upon the venous return current, reflexive nervous irritation supervenes, a hyperesthetic state follows with increased tension of the sphincter ani; *pari passu* a cellular infiltration goes on in the loose connective tissue of the parts, as the result of the venous congestion, and the irritated nerves continually repeat the telegraphic messages of pain and suffering.

Although the pathological conditions above described produce by far the larger part of suffering ascribed to so-called "piles," we must not forget that there are other diseased conditions which may be confounded with the above symptoms. Small, fleshy masses about the verge of the anus, sometimes called condylomata, without reference to cause, are of easy distinction. These have nothing whatever to do with the hemorrhoidal veins,

and are changes in the cellular structure of the skin and subjacent parts or mucous membrane, and may be the result of friction or erosion arising from a variety of causes.

The so-called villous tumor of the rectum is of sufficient frequency to be held in consideration. It is not unlike the villous growths of the bladder and other mucous surfaces. Its extraordinary vascularity commonly reveals its presence because of hemorrhage, and, unless differentiated, it will be diagnosed as a bleeding pile. The soft, mucous polyp of the rectum is an adenoid structure of close relationship to the villous growth and is sufficiently often the cause of suffering to be kept in mind.

The dilatation of the hemorrhoidal plexus is usually underestimated as ordinarily examined. When the sphincter has been dilated under ether it will often be found that a rosette of vessels extrudes the size of a small tomato.

Laceration of the perineum in the female is very commonly accompanied by such enlargement of the vessels, caused by the rectocele and defective function of the pelvic organs. When the laceration of the parts has included the sphincter the ectasic vessels are wanting, although the mucous membrane of the lower part of the rectum under these conditions is often seen as a soft, projecting, reddish tumor. From this may be drawn the inference that the sphincter constriction, with the changes incident upon the retention of the rectal contents, acts as the cause of the dilated vessels, rather than the superincumbent weight of the portal column of blood.

When the venous plexus of vessels has become pronouncedly varicosed they have as a covering the lax submucous tissue of the rectum close to the anus, and, when put on tension, are protruded as a ring of transverse rugæ round the anal aperture. Certain of the rugæ are developed into roundish protuberances and sometimes into tumors of considerable size.

Upon the introduction of the ligature for the arrest of arterial hemorrhage by Ambrose Paré there arose a wide application of this important surgical innovation. Nothing seemed more natural than that it should find one of its most valuable uses in the treatment for the cure of hemorrhoids.

From the above description of the causes and pathology of hemorrhoidal tumors it might not seem difficult to determine when these conditions become amenable to surgical treatment.

Perhaps a more accurate definition might be given as follows :

When the blood equilibrium in the hemorrhoidal vessels has become so changed that the vessels themselves are ectasic, and the blood current so impeded that, in part at least, stasis has occurred, the surrounding connective tissue become edematous, the nutrition thus impaired causes nerve irritation, difficult defecation, with more or less marked resulting disturbance of nerve reflexes. Such conditions, as a rule, do not tend to spontaneous recovery, and the patient is doomed to a greater or less degree of invalidism.

The presenting masses are readily exposed, and few procedures are easier than their ligation. In this we find abundant reason why the practice of ligation has continued until the present. The criticism of this method that it is unsurgical is found in that, while it includes in a blind way a considerable portion of the dilated vessels, it also compresses and destroys tissues important for preservation—to wit, namely, the surrounding integuments, mucous membrane, nerves, etc. It also leaves of necessity a very considerable portion of the hemorrhoidal plexus of veins, which too commonly reappear after operation, reproducing pathological conditions with their attendant suffering not unlike the primary affection. These are grave criticisms, to which may be added that which has caused the abandonment of the ligature, similarly applied, in every other part of the body—namely, the necrosis of the portion included, attended by a necessary local, infective, and suppurative process. At the best this is followed by a comparatively slow and painful convalescence, and all are aware that resultant septic conditions may pertain dangerous to the life of the individual.

This operation has been variously modified in order to avoid these objections. In the attempt to maintain an aseptic condition of the lower bowel, constant disinfection by the use of iodoform, submucous ligatures, etc., has been employed.

The only other method which the recent work presented to the profession under the assuming title of the "American System of Surgery" has deemed worthy of serious discussion, is the destruction of the hemorrhoidal masses by means of the clamp and cautery. This is advocated as an advantage over the ligature from the fact that the destruction of the tissue included by the clamp is immediate and complete, that it controls hemorrhage equally as the ligature, and that septic processes are less likely to supervene.

The objections to the cautery are well founded—namely, that the resulting processes of repair, as after the use of the ligature, must be secondary and cicatricial. The period of convalescence is painful, and the suffering immediately following the operation is of the same exquisite type as is experienced from burns in any part of the body. As by the ligature, tissues are necessarily destroyed which should be preserved, and considerable portions of the hemorrhoidal plexus, invariably more or less diseased, are not removed.

For a number of years I was an enthusiastic advocate of the clamp and cautery, since it gives a primary wound which is aseptic, while by the time the slough is ready for separation the subjacent tissues are in a measure protected by the proliferating, granulating tissue. My results were more satisfactory than by the use of the ligature, although secondary hemorrhages have been reported and troublesome cicatricial contraction has been occasionally observed.

It is worthy of our consideration to review briefly the advantages of the once common practice, and still occasionally used, resulting from the injection of certain medicaments into the parts. Carbolic acid was the most often used, since it is in itself an antiseptic, it coagulates rapidly the blood and albuminoids, so that there is little danger of poisoning from its absorption. Various combined with morphine, cocaine, etc., the injection is accompanied with little suffering. By the use of weak solutions, even after many repetitions of the injections, the hemorrhoidal vessels remain comparatively little changed, and, if strong carbolic acid is used, necrosis supervenes which unfortunately is limited with great difficulty to the pathological structures, owing to the dissemination of the acid into the loose connective tissue.

My friend Dr. H. D. Didama, of Syracuse, N. Y., ingeniously modified this operation with manifest advantage by first including the parts to be operated upon with a provisional ligature.

It is now quite ten years since the method of Mr. Walter Whitehead, of Manchester, England, for the surgical treatment of hemorrhoids, was brought to my attention. It seemed to me to possess very marked advantages over any procedure hitherto recommended, and I adopted it with most satisfactory results. From that time to the present it has been more severely criticised than most other procedures, and often inaccurately

described. I presume to recall the most important factors of this operation :

"The bowel having been well emptied on the previous day, the rectum cleansed, and the sphincter dilated, it is easy to observe the line of demarcation between the skin and mucous membrane. Upon this line the section is made until the hemorrhoidal veins are freed from their connective-tissue attachment. These are divided into segments, each segment seized by ring compression forceps, and the dissection continued upward in the cellular plane to the highest limit of the hemorrhoidal growths. Opposite to this the mucous membrane is divided transversely, leaving the hemorrhoids simply attached by a loose cellular tissue, and the vessels proceeding from above and supplying the mass below." . . . "The hemorrhoids are then twisted and removed, the divided surface of the mucous membrane is drawn down and attached by several fine silk sutures to the denuded border at the verge of the anus." . . . "A contingency that will at once suggest itself to the minds of those who read this description is the risk of stricture likely to follow the cicatrix resulting from this plan of operation. I may mention that, however, wherever it is feasible, with strict regard to removing every evidence of any hemorrhoidal growth, I invariably leave longitudinal strips of mucous membrane continuous with the skin; but in severe cases, requiring the removal of the entire circumference, I have no fear of the bowel being inconveniently contracted when mucous membrane alone is sacrificed, and believe that undue contractions only take place when annular cicatrix is formed at the expense of integument. I have taken great pains to ascertain that this fear is groundless, and I have watched most of my cases for a sufficient length of time to relieve my mind from any further anxiety on this point; at the same time I fully realize that the progress of such contractions is slow." ¹

In a further contribution² Mr. Whitehead emphasizes the advantages of the operation described in his previous contribution, and the criticisms which followed its discussion were for the most part favorable.

Dr. Kelsey,³ of New York, criticised Mr. Whitehead's method

¹ "The Surgical Treatment of Hemorrhoids," *British Medical Journal*, February 4th, 1882.

² *British Medical Journal*, February 26th, 1887.

³ *New York Medical Journal*, December 8th, 1888.

"as a naturally difficult, tedious, and bloody operation," and that no essential change had been made in the guiding principle. At that time Dr. Kelsey appeared never to have performed the Whitehead operation and expressed a distinct preference for the clamp and cantery. I have recently been informed that he has discarded the cantery and at present believes in the use of the ligature.

Mr. Whitehead¹ made emphatic answer to Dr. Kelsey's paper. To the charge that his operation is difficult, Mr. Whitehead replies "that young surgeons have repeatedly assured him that they do not find the operation difficult, and that he is satisfied that it is an operation which can easily be performed by any surgeon possessing average skill and intelligence"; that it is tedious, he declares "that in an average case it can be completed in ten minutes"; that it is bloody, he states "that it is never excessive; hemorrhage such as I meet with may well take a subordinate position to other and more important considerations involved in the operation."²

Mr. Whitehead's experience at this date included three hundred cases of operation—certainly sufficiently ample from which to make deductions, and which entitle his opinions as worthy of the highest consideration and respect.

It is more than fifteen years since I operated upon two cases of prolapsed rectum by first, before resection, entirely encircling the prolapsed parts with a row of continuous, double, tendon sutures. From the good result obtained in these I was led to apply the same method in suturing the ring of dilated hemorrhoidal vessels before resection. Since, this method has entirely superseded all others in my practice, and it has been demonstrated by operating in the presence of many surgeons, always with distinct approval. My first publication upon the subject is found in the *Journal of the American Medical Association*, July 21st, 1888.³

Although I am distinctly indebted to Mr. Whitehead for his most valuable paper, I cannot but think my method of suturing and closure is worthy of consideration and adoption. For this reason I may be pardoned, for the guidance of those less experienced, in presenting the same somewhat in detail.

¹ New York Medical Journal, February 23d, 1889.

² "The Cure of Hemorrhoids by Excision and the Closure with the Buried Animal Suture," *Annals of Surgery*, November, 1889

It is important that the alimentary canal receive attention for a day or two prior to the operation; that the lower bowel be carefully emptied by a cathartic the day previous and the morning of the operation; that the rectum be cleansed by a large enema, the diet for a few days having been restricted chiefly to fluids. The patient, having been etherized, is retained in the lithotomy position by means of the Clover crutch, and the parts are protected by the inflated rubber irrigation pad. It is of the first importance slowly and carefully to paralyze the sphincter by a thorough dilatation of it. The lower segment of the rectum is then carefully cleansed by irrigating with a solution of bichloride of mercury (1:2000), followed by sterilized water. A loose wool pad of fist size, into which iodoform has been freely incorporated, is now introduced into the rectum, leaving a string for its withdrawal. Under a good light it is easy to follow the line of demarcation between the skin and mucous membrane. It will be found usually that the hemorrhoidal tumor is of much larger dimension than was previously supposed, and that it lies easily everted upon the external border of the sphincter muscle.

With a pair of sharp-pointed, curved scissors or knife, the parts being steadied by two fingers in the rectum, it is easy to follow the line of demarcation and divide, from behind forward, upon either side, to the anterior median line. It will generally be found that the loose connective tissue is easily separated, with very little bleeding, until the external border of the sphincter is clearly brought into view. This is usually the upper border of the hemorrhoidal plexus, and, if it extends higher, the dilated vessels are easily traced to their bases, generally by pressure of the scissors or some blunt instrument. The base is encircled with a double line of continuous tendon sutures, so taken as not to penetrate through the mucous membrane. The vessels are now divided at the base, and so much of the mucous membrane as is not diseased dissected free before division. Lastly the mucous membrane is divided transversely, and the entire ring of hemorrhoidal vessels is thus removed. It will now be observed that the external fibres of the sphincter are uncovered, lying at the base of two shallow circular flaps. These are approximated by a single continuous tendon suture, the stitches taken just within the divided edges, parallel to the flaps, each succeeding stitch entering directly opposite the

emergence of the previous stitch. Tension upon this coaptates the parts without puckering, covers the sphincter, and leaves only a comparatively slight wound of unclosed structures. A second row of suturing, taken just within these divided edges, in the same way, by tension upon the suture, completely approximates the skin and mucous membrane and buries it entirely from vision. The line of union is covered with a seal of iodoform-collodion, reinforced with a few fibres of cotton, and the operation is complete.

It may be done much more rapidly than this description would seem to imply, ten minutes being often ample for the operation. It is comparatively bloodless, because the vessels are occluded before division. It is important that the sphincter be completely paralyzed, since this muscle should be for some days without functional activity in order to lessen pain and promote rapid union. The wool tampon had better be removed about the third day. It is well to adjust a small pledget of cotton or gauze as an anchor to the distal end of the string, since occasionally the wool pad may be drawn up the bowel.

The advantages of this method of operation are apparent. By the dissection as practised by Mr. Whitehead, *only the diseased structures* are removed and the remaining parts are left in an undevitalized, clean condition. This is in accord with the rules of surgery which apply almost without exception to other parts of the body, and it seems an anomaly that this portion of the body should be beyond the pale of modern surgical procedure. Although all surgeons are well aware that wounds of the anal outlet are liable to infection, yet the experience is abundant to demonstrate that the majority of such wounds can be *made and maintained aseptic*, undergoing, as elsewhere, primary union.

When primary union is secured the recovery is, as elsewhere, rapid and the suffering is minimized. The lower bowel is in a large measure protected by the iodoform wool. The wound having been made and maintained aseptic during the dissection and closure of the parts, the protection from the collodion seal is ample for a short period. This must be kept under observation much more closely than when used for the protection of wounds through cutaneous surfaces. It is surprising to note the rapid cell proliferation which ensues in an aseptic wound at rest, thereby protecting the injured tissues. Two or three days

place such a wound almost beyond danger. To this end, as also to prevent suffering, it is of the first importance to paralyze completely the sphincter ani with the *minimum of injury*.

As might be inferred, the results obtained, when the operation has been thus properly executed, are not alone excellent, but are much superior to those following the use of the clamp and cauterly or the ligature. Primary union always minimizes cicatricial structures. Even when suppuration ensues after a clean dissection, the tissues are on this account so much the less devitalized that they are better able to resist the invasion of bacteria, and the vessels have been occluded by the sutures so that hemorrhage does not occur.

It is six years since my last publication upon this subject, and my own large experience during this period more than justifies all that I then wrote in favor of this modification of the operation presented to the profession by Mr. Whitehead.

I consider it so simple and effectual that I am in the frequent habit of adding this operation to the list of the operations for the restoration of the pelvic structures in woman, where hemorrhoids are such a frequent complication—*e.g.*, eurenting, repair of the cervix, colporrhaphy, perineal reconstruction, all at a single sitting.

Cases vary in severity, and in like manner do the conditions of ease and rapidity of repair and restoration of function. The nervous reflexes, which enter so often as a prominent factor into the suffering caused by hemorrhoids, are often slow to disappear as after other operations. "Remove the cause of the irritation and trust that the irritation will disappear" is an old maxim accredited to Dr. Watson, the author of the "Practice of Medicine" so familiar to our earlier days, given by him as advice in a celebrated consultation to Sir Benjamin Brodie.

This paper has been written because of a review recently published¹ of the Whitehead operation by my friend Dr. E. Andrews, of Chicago. It is very evident that Dr. Andrews has been prompted to do this because of the wretched results which he has had under observation, the outcome of work performed by ignorant pretenders styled by him "certain persons calling themselves official surgeons." It is, however, but charitable to believe that, in his zeal to protest against such infamous imposition, the good doctor has failed to discriminate between

¹ Fort Wayne Medical Magazine, July, 1895.

these practices and the skilful performance of a well-advised surgical operation. Indeed, I greatly fear that he has never investigated the subject in a true judicial spirit, and it is very probable that he has never attempted the dissection and excision of the greatly enlarged and deformed hemorrhoidal plexus of vessels. Certainly he misinterprets Mr. Whitehead and greatly exaggerates the extent of the operation in his accompanying illustrations. Done as depicted, what he calls "a thorough Whitehead" would result "in great and irreparable mischief."

The object of surgery is to *save* and not to *destroy*; to remove *pathological*, not *healthy* structures; and this is the very end and purpose of the dissection method, in marked contrast with the operations still so generally advocated, where, indiscriminately, the presenting masses are destroyed by ligature or cautery. In the earlier part of this paper I have emphasized the active part which the sphincter takes in producing the ectasic condition of the vessels, and given quotations from Mr. Whitehead's published articles to show the proper limit of the advised dissection. It is easy to determine the upper limit of the parts to be removed.

After the complete dilatation of the sphincter the ectasic plexus of vessels lies really external and presents as a rosette of greater or less size, with the line of the skin marking the outer border of the tumor. Only the redundant mucous membrane is removed, which has become as truly pathological as the vessels themselves.

"The important tactile organs connected with the special rectal sense" are properly *never* removed. The mucous membrane is *never* to be pulled down by *force*, nor in any instance should there be the slightest reason why, from tension, the stitches taken by my method should give way.

The last objection made by Dr. Andrews is the danger from septic infection, which, he admits, "in Whitehead's method is not very great, but is something."

The great advances made in modern surgery are in large part the ability to secure primary union in coaptated aseptic structures. These methods have caused the condemnation and abandonment of constricting by the ligature vitalized structures for the purpose of necrosis, and the use of the cautery, where follows of necessity the slow healing of an open wound. It would

indeed be strange if the anal structures were the only exception.

Dr. Andrews is to be commended for his extensive research after disasters. Statistics have their value, often very great value, but it may be remarked that they serve an especially useful purpose to bolster up a preconceived premise.

Let us briefly analyze Dr. Andrews' table. Gathered from correspondence, he finds two hundred and one cases where ill results have followed the *so-called* Whitehead operation. The methods employed under this designation are not described; even the names of the operators are not given. The number of operations is omitted; no percentages are possible, and any analysis must be very unsatisfactory.

Dr. Andrews, however, states that, if the Whitehead operation is thoroughly performed, the whole tactile mechanism is swept away and nearly all tactile special sense is removed. Thus, according to Dr. Andrews' definition, these bad operations have been very imperfectly performed, since in less than four per cent of his defective cases has this result been observed.

Another ill effect which it is claimed must result from this dissection is the loss of the reflex mechanism and consequent incontinence of feces. This is by far the most serious charge, and the number of cases reported is twenty-seven. But is it not far more likely that this has resulted from some injury to the sphincter? Certainly it is not properly involved in a correct dissection of the parts, and has never occurred in my experience.

Nine cases of stricture are reported, a result which ought to follow as the rule if thoroughly done as described—according to Dr. Andrews' reverse order of reading, ninety-five per cent of failures because stricture did *not* supervene. According to his own conclusions sixty per cent of the entire list is of little value because without accurate description. Most of the operators quoted as opposing the dissection method have never performed the operation.

What we really need is the evidence which alone can come from honest, judicial, capable surgeons who have carefully dissected and removed only the *pathological structures* with *aseptic primary* closure. These witnesses, giving an analysis of their experience, would furnish evidence of a crucial character.

It is now futile for those who have never operated to condemn this method as unsurgical and unscientific, unless, indeed, they

can exhibit bad results of cases operated upon by men of acknowledged ability and in strict adherence to the detailed description of the method.

My own experience in this operation extends over a period of twelve years of practice, with a large list of cases and of every variety. A statistical table at this writing is impossible, but I am assured that the operation, as I have performed it, is so exceptionally satisfactory in results that I heartily commend it to the favorable consideration of all surgeons. I have never seen a case where the patient seemed to approach the danger line. The subsequent suffering is very much less than by other methods, the recovery more rapid, and the results far more satisfactory. I commend to Dr. Andrews, as a surgeon of national repute, that he give this method a fair trial, with the assurance that at some subsequent period we shall have a reversal of his present verdict upon an operation of great importance to an army of daily sufferers.

180 COMMONWEALTH AVENUE.

SHOULD INTRAUTERINE INJECTIONS OF GLYCERIN BE USED FOR THE INDUCTION OF LABOR?*

BY

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It is now three years since Dr. C. Pelzer, of Cologne, first called the attention of the medical profession to the intrauterine injection of glycerin for the induction of labor and the stimulation of uterine contractions.

In an article published in the *Centralblatt für Gynäkologie*¹ he gave the history of five cases successfully treated by this method and recommended it to the profession. As all previous plans of treatment had been more or less objectionable and inefficient, the use of the intrauterine injection of glycerin was, as he has recently expressed it, "hailed with delight by many experienced obstetricians." Clinicians in different parts of the world began to apply his method as suitable subjects presented.

* Read before the American Association of Obstetricians and Gynecologists, September, 1895.

In short order reports appeared in the journals giving the statistics of cases treated, and lauding intrauterine injections of glycerin as a "simple, safe, and efficient means for the induction of labor and the stimulating of uterine contractions." Notable among these authors were Dr. J. Clifton Edgar, of New York City, who reported two cases,² and Dr. Alexander Russell Simpson, of Edinburgh, who reported six cases,³ without any failures or serious complications. That the profession was favorably impressed by those reports goes without saying; and the means advised was applied by different physicians in widely separated localities. Fortunately, in this manner, by practical tests, the merits or demerits of new remedies and methods are brought out; and before long the intelligence and judgment of the profession adopt them if of proved value, or discard them entirely if found inefficient and dangerous.

"Pelzer's method" has now been before the profession long enough, and sufficient cases (between thirty and forty) with results have been reported, for an intelligent judgment to be passed as to its value. Before discussing the evidence presented permit me to read the notes of a case coming under my observation.

Through the kindness of Dr. H. Marks, Superintendent of the St. Louis City Hospital, I saw a patient for whom Pelzer's treatment was deemed appropriate. I regret that, in accordance with the importance of the case, a more accurate and elaborate clinical history was not kept. However, I will give it as it has been furnished me, and hope that most of the salient points will be brought out for your consideration.

Mrs. M. W., aged 23 years, married, servant, United States. Family history *nil*. Previous history: typhoid fever some years ago, and an undefined eruption on body two years ago, her only illnesses; recovery from both apparently perfect. Eighteen months ago was delivered by forceps of a dead fetus after a labor lasting three days. Recovery good. Last menstruation January 8th, 1894. Enjoyed good health until about the middle of September, 1894, when, being then pregnant, she was struck in the abdomen. Felt life for one week after injury, but none since. Has vomited frequently during past three weeks and suffered more or less pain in stomach and back. Has observed no headache or swelling of the body. Entered hospital October

8th, at 6 P.M., suffering with labor pains, which began at 8 A.M. of the same day.

Present condition.—Pulse 88 with occasional intermission; temperature normal; tongue moist and slightly coated; bowels open; bladder evacuated normally; urine light yellow with a specific gravity of 1007, presents a mere trace of albumin but no casts or blood corpuscles.

Physical examination reveals no abnormality of organs. General appearance healthy; no edema. Obstetrical examination indicates pregnancy at eighth month; neck of uterus not obliterated; os uteri closed; vertex presentation; fetal heart sound doubtful—said to be heard by some of the examining physicians, by others not; no fetal movements observable.

Diagnosis.—Pregnancy eighth month, with false labor pains.

Treatment.—As patient was in good condition mentally and physically, and as there was a doubt about the fetus being dead, she was put on opiates, hoping that the pains would disappear and that the child, if alive, might be saved. Uremic poisoning being suspected, daily examinations, chemical and microscopical, of urine were made, but revealed no abnormality save a trace of albumin and a somewhat diminished quantity. There was also an entire absence of fever.

On October 11th, the patient showing signs of exhaustion and the pains returning as soon as the effects of the opiates wore off, upon consultation it was deemed best to induce labor and empty the uterus. Accordingly, at 7 P.M., after thorough antisepsis of genitals, instruments, and glycerin, Pelzer's treatment was instituted, two and a half ounces of glycerin (some, possibly two to four teaspoonfuls, was lost in the operation) being injected near the fundus of the uterus through a No. 10 English gum catheter, which was plugged and allowed to remain. Labor pains, which already existed, soon became stronger and continued all night. Vaginal examination on the morning of the 12th revealed but little progress in the labor; the os uteri was open merely enough to admit one finger, and the fetal head presented low in the womb. The patient having passed no urine through the night, the bladder was catheterized and one ounce of bloody urine drawn; examination of same revealed some albumin and hemoglobin, a few blood corpuscles, but no casts. Pulse rapid and feeble; respiration accelerated; some nausea and vomiting. At 8 A.M., October 12th, second glycerin injection, two ounces,

was given, and catheter left *in situ*. Labor progressed slowly throughout the day, although pains were strong, and patient was delivered of a dead fetus at 6 P.M. by forceps. Instruments were used on account of exhaustion of patient and powerless labor. Position O. L. P. After delivery patient remained very weak and exhausted; was semi-comatose through the night; vomited dark material. Heroic stimulation resorted to—opiates, strychnia, ether, and hypodermatic injections of one pint normal salt solution, with rectal alimentation.

October 13th, morning: Patient still weak and stupid; vomits often; tongue dry and coated brown; pulse rapid and feeble; temperature 102.6° F.; bowels moved freely by laxative enema; stimulants and nourishment kept up through the day. Evening: Patient weak but brighter; temperature 100.6° F.

October 14th, morning: Patient much improved; vomits less; takes nourishment and stimulants by mouth; pulse 96; temperature 97.6° F.; respiration 20. Evening: Pulse 100; temperature 97° F.; respiration 24.

October 15th, morning: Rested well through the night; pulse 104; respiration 20; temperature 98.2° F.; bowels acted freely during day. Evening: Pulse 100; respiration 20; temperature 98° F.; no vomiting to-day. (No reference being made to urine during 13th, 14th, and 15th, I take it means no abnormality observed.—AUTHOR.)

October 16th: Patient not so well to-day; vomits dark-colored matter; has occasional twitching of muscles; is delirious at times; skin itches intensely; urine scanty and high-colored, contains one per cent albumin, epithelium, and a few blood corpuscles. Diuretic cathartics given.

October 17th: Patient much worse; in semi-comatose condition; has almost total suppression of urine; pulse rapid, weak, and compressible; breathes in gasps, and breath has urinous odor; no vomiting; treatment continued.

October 18th: Patient has continually grown worse; pulse weaker; urine entirely suppressed; during afternoon about one quart normal salt solution given hypodermatically; some improvement in pulse followed; hot pack applied. Patient died in the evening.

Autopsy seventeen hours after death; rigor mortis poorly developed.—Lungs very dark-colored and contained large amount of venous blood. Heart normal; no valvular lesion; no peri-

cardial exudate. Liver showed increase of fat; otherwise normal. Spleen swollen and soft. Kidneys swollen, congested, non-adherent capsule; fatty change in cortical substance. Uterus enlarged, but contained no membranes or placenta. Peritonem normal; many ecchymoses on serous membranes. Cause of death, acute nephritis.

Here we have the case of a healthy, strong, and robust woman, working as a servant up to the very day she entered the hospital, with no flaw in her history save the injury received three weeks prior to labor, dying of acute nephritis following the intrauterine injection of glycerin. The clinical history is so at variance with that of those dying from shock, entrance of air into the veins and circulation, or from metritis—the usual fatal results of vaginal and uterine douches—that I cannot for a moment believe that death resulted from any of these causes. The only reasonable conclusion to my mind is that the *method* is at fault.

Up to this time, unfortunately, I had only learned of the favorable results of Pelzer's treatment. Further investigation into the literature of the subject revealed that others had also met with disagreeable effects—none of them so serious as in this case, but all of them of such a character as either to make the operator more conservative in his use of the method or to cause him to abandon it altogether.

Dr. F. Pfannenstiel⁴ seems to have been the first to write upon the danger of these injections, reporting two cases that came under his observation in the Breslau Gynecological Clinic, in both of which he observed the most positive signs of the poisonous effects of glycerin upon the blood and of irritation of the kidneys. His first case was one of pregnancy with nephritis, in which the patient suffered so seriously from edema and functional disturbance of the heart and lungs as to render an immediate emptying of the uterus necessary. Pelzer's method was used, but the woman died eight hours after the injection, without labor pains being induced. This case should not weigh against the treatment, as the patient was probably hopeless. However, at the post-mortem examination it was observed that the kidneys and bladder were irritated by the glycerin and that the bladder contained bloody urine.

In his second case—pregnancy with contracted pelvis, normal urine, and health good—the injection of one hundred cubic cen-

timetres of concentrated glycerin produced immediately severe labor pains, followed in one hour by obtunded sensibility, cyanosis, fever 102° F., and slowing of the pulse. Urine drawn off one hour after the injection was of a blood-red color. This persisted for twenty-four hours. Examination of urine revealed large quantities of albumin, some hyaline casts, no red blood corpuscles. Spectrum analysis showed methemoglobin and hemoglobin. Premature labor was induced by colpeurynter. Child born alive. Puerperium without complications.

About the same time Dr. Mueller⁵ reported, from Von Winckel's clinic, the case of a pregnant woman with a contracted pelvis and a very large goitre, where he injected one hundred cubic centimetres of glycerin into the womb to induce premature labor. Ten minutes after the injection there was vomiting, the bowels acted, and a rigor of one hour's duration occurred, with severe dyspnea. The temperature mounted to 104.9° F. and the pulse to 156. Both dropped on second day. During labor and for a few days afterward the urine was of a dark reddish-brown color, produced by the presence of methemoglobin and hematoporphyrin. Mueller adds that the method acted quickly, but the reaction was so trying that it appears clearly indicated that less glycerin should be used.

In our own country I find a very interesting case reported by Dr. Oscar Embden,⁶ of Brooklyn, N. Y., where, in a pregnant woman suffering with nephritis and threatened eclampsia, he injected ninety cubic centimetres of sterilized glycerin into the uterus to produce premature labor. Slight uterine contractions followed for three hours, when they ceased. Pulse rate lower, from 78 to 50 per minute. Temperature normal. Six and one-half hours after the injection the woman, being attacked with eclampsia, was delivered of a living child by manual dilatation. Following the use of the glycerin a large quantity of hemoglobin appeared in the urine, gradually disappearing twenty-four hours after delivery. The second day after confinement a severe icterus set in and the patient fell into a comatose condition which continued for six days. Subsequent recovery gradual.

Here are five cases, including the one reported in this paper, all presenting evil effects of intrauterine injections of glycerin for the induction of labor. While different organs—kidneys, liver, stomach, bowels, brain, nervous system—seem to have been occasionally affected, the kidneys suffered invariably.

These symptoms can all be accounted for by the poisonous effect of glycerin upon the blood, decomposing, as it does, the red blood corpuscles. Pfannenstiël, as quoted by Embden, says that glycerin is liable to occasion decomposition of the blood, as Lichsinger,⁷ Schwan,⁸ Filehne,⁹ Lebedeff,¹⁰ and Wiener¹¹ have demonstrated; and Afanassiew¹² has shown, experimenting with dogs and rabbits, that the hemoglobinuria caused by glycerin brings on a glomerulo-nephritis, which is followed after the injection of more glycerin by interstitial nephritis as well as interstitial hepatitis, each case presenting the bloody urine with its constant constituents.

Pfannenstiël finds an explanation of the absence of accidents in Pelzer's cases in the fact that Schwan, Lebedeff, and Filehne have shown that in rabbits, when the glycerin is brought under the skin, hemoglobinuria always occurred, but that it did not occur, or in a slight degree only, when it was injected directly into the veins. Without giving an explanation of this remarkable fact, Pfannenstiël deems it possible that in Pelzer's cases the glycerin was rapidly absorbed by the circulatory system, while in his case it acted in the decidua uteri as if it had been injected by the hypodermatic method.

Whatever may be the explanation of the various effects of glycerin injections in the hands of different operators, the identity of the poisonous symptoms in the five unfavorable cases presented in this paper is incontrovertible. Should, however, any further confirmatory evidence of the poisonous effects of glycerin be deemed necessary, beyond the experiments upon animals already quoted, we have it furnished by the surgeons who, a short time ago, were injecting iodoform-glycerin into various cavities in the body, but who now have abandoned the practice on account of the poisonous effects produced. Mikulicz, quoted by Pfannenstiël, says glycerin can induce poisoning when injected into absorbing tissues or cavities, and he has observed hemoglobinuria accompanied by methemoglobin appear in several cases in twelve to twenty-four hours after such injections, disappearing in twenty-four to forty-eight hours without reappearing. In one case, after curetting two periarticular abscesses of the hip in a 4-year-old boy, sixty grammes of iodoform-glycerin were injected, followed by severe hemoglobinuria and death in four days. The autopsy revealed acute parenchymatous nephritis, edema of the lungs, and fatty degeneration of

the liver. This, as you will observe, is almost the identical condition found in the autopsy reported by me in this paper. Since that sad experience Mikulicz is said no longer to inject iodoform-glycerin into absorbing cavities.

That glycerin used in this manner is poisonous and deleterious admits of no doubt. Clinical observations by obstetricians and surgeons, and experiments upon animals, justify this conclusion. The method, then, should be abandoned and relegated to the past with those of Kiwisch, Schweighäuser, Cohen, James, and others. No degree of efficiency can justify the employment of means fraught with such terrible danger.

But glycerin injections do not possess even the merit of certainty, as many operators after using them have resorted to other measures to effect delivery.

Pelzer even seems to be losing some of his enthusiasm. In a recent article¹³ he admits that his method has not come up to expectations in all cases, and adds that he would like to see its application limited, both in selecting the cases and in the amount of glycerin used. Further on in the same article he says that the method should not be applied to women suffering with eclampsia or placenta previa. I would like to add that it should not be employed at all, but least of all in cases with kidney complications. In the light of experience it is inapplicable in constitutional or organic diseases of pregnant women; and, certainly, more effective and less dangerous means can be resorted to in pelvic contractions where an elective operation is permissible. But in objecting to any plan of treatment we may expect to be asked, What can you recommend that is better? We answer cheerfully that we think several methods are preferable, but the one *par excellence* to be selected is the elective accouchement, or the "accouchement forcé," as it is frequently termed. But I will not take up your time discussing this method, as it has been recently so ably placed before the profession in a paper by Dr. L. M. Michaelis.¹⁴ This treatment alone takes into consideration the welfare of the child as well as that of the mother, and is incomparable in its results as a life-saving measure for both.

Glycerin injections sometimes produce very violent uterine contractions and hence must be followed by a great fetal mortality. In fact, Pelzer himself says that large doses, such as one hundred cubic centimetres, are apt to destroy the life of the

child in this manner, and that he believes such a result happened in one of his cases. In examining the thirty-three cases reported I find that thirteen children were born dead or survived but a few minutes, which certainly is a large mortality for an ideal operation.

To sum up the argument: Intrauterine injections are often inefficient, especially so in doses under fifty cubic centimetres. They are liable to be followed by all the ill effects—shock, air embolism, thrombosis, metritis, and sepsis—of other intrauterine douches which have been used and abandoned during the present century. They may and sometimes do produce glycerin poisoning—*i.e.*, decomposition of the blood corpuscles—resulting in diseases of various organs, but more especially in nephritis with hemoglobinuria.

The method takes no consideration of the life of the child and hence results in great fetal mortality.

Its use should be abandoned or the dosage reduced, especially in subjects with prior existing kidney affections.

2005 VICTOR STREET.

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KRAUROSIS VULVÆ:

A CONTRIBUTION TO ITS PATHOLOGY AND THERAPEUTICS.¹

BY

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THE pathological condition known under the name of kraurosis vulvæ is one whose etiology has not been discovered, whose pathology is but imperfectly understood, and whose therapeutics, in consequence of this ignorance, is still experimental and of doubtful value. The disease as a scientific entity has not yet been accorded a permanent position in the medical literature of the day, as but few of the text books make any mention of it; information on the subject being almost entirely in the shape of articles which have appeared from time to time in the periodicals.

One would judge from this that the affection is a rare one, and, comparatively speaking, it probably is; but I believe its occurrence is much more frequent than this fact would indicate, and that many observers when treating the affection have failed to note the true nature of the disease, treating it often without proper examination—which is a too common fault with the busy general practitioner—and diagnosing and treating these cases for other affections, such as vaginismus, pruritus, vaginitis, etc.

The appellation of “kraurosis vulvæ” (meaning *shrinking of the vulva*) was given it by Breisky, of Prague, in 1885, who then reported a number of cases; but the disease was recognized, at least as regards some of its peculiar pathological characteristics, some time before this date, as it was described by Dr. Robert F. Weir, of New York, in 1875, as an ichthyosis of the vulva, and also by Mr. Lawson Tait, who described it in 1877 under the name of “serpiginous vascular degeneration of the nymphæ” and writes of it in his recent work on diseases of women. A scholarly paper, and very exhaustive résumé of the subject, was read by Dr. C. A. L. Reed at the last meeting of the American

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

Association of Obstetricians and Gynecologists, in which he gives us still another name for the disease, calling it "progressive cutaneous atrophy of the vulva." These names all have the disadvantage of attempting and yet not describing the full pathology of the affection. The latter appellation would indicate that the disease is situated only in the cutaneous portion of the vulva, while, according to my own observation, a degenerative process occurs in the cellular tissue underlying the cuticle, and evidently preceding and leading up to the surface manifestation, and which, in my opinion, is of greater pathological importance than the later affection of the skin. The name "ichthyosis of the vulva" simply describes the appearance of the disease at the stage in which the cuticle is cracked and abraded. Tait's term of "serpiginous vascular degeneration" refers, like the others, to one part only of the general process, in which a sort of strangulation of the blood supply occurs. I use Breisky's name because it is short and expressive only of the general appearance of the diseased parts, without attempting to describe what is evidently a complicated pathological condition.

In regard to the etiology of the disease a number of opinions have been expressed by observers from time to time, but clinical evidence has not substantiated them, so that it still remains an open question, a field for original research. From the evidence of clinical observations, which have been confined, however, to but three cases, I am very strongly inclined to the opinion that the cause does not lie in any local or constitutional affection outside of the nervous system, and that the morbid process is due to some defective nerve action, probably of a reflex origin. All of the cases seen by me have been in women who have passed their fortieth year, and in each case the symptoms of the disease were manifested coincidently with those experienced by the patient due to the menopause. In the first case in which I recognized the disease the woman was still menstruating, although irregularly, and the symptoms of the kraurosis had troubled her for about a year, the local appearance of the disease indicating that it was in an early stage of development. In my second case the symptoms of the disease had been manifest for six or seven years, the patient's ovaries had been removed two years before I saw her and before the menstrual function had entirely ceased, and the kraurosis was found to be in the

advanced stage of atrophy. In the third case, the history of which I will shortly narrate, the symptoms of the disease began with the cessation of the menstrual function, and when examined by me four years later the kraurosis had attained what might be called, for comparison, the middle stage. In all three cases constant backache, with no evident cause, was present, and in the last two this symptom was not only marked but required constant treatment for its alleviation. In my second case, in which the disease had progressed for six or seven years, the symptoms of spinal irritation had been so severe at one time as to require the application of the actual cautery. These facts, in the opinion of the author, all point toward a central nerve lesion as a probable etiological factor in the disease.

The clinical features of the disease are characteristic, and once recognized will never be mistaken for any other pathological condition. On inspection the hair around the vulva will be found to be thin and dry, and late in the disease almost entirely absent; the vulva will appear small and infantile, the labia minora small and shrunken and late in the disease smoothed off to almost an even surface with the labia majora; the color of the integument will be pale and bloodless and devoid of pigmentation, while the muco-cutaneous surface will be studded with a number of irregularly-shaped, reddish-brown spots, which on close inspection will be seen to be slightly depressed below the surface on which they lie; the parts are usually dry, and sometimes the mucous surface is cracked and abraded, and occasionally a slight, brown, purulent discharge is seen. On separating the lips of the vulva the brown spots are seen to terminate abruptly with the margin of the introitus vaginæ, being confined entirely to the vestibule. These spots disappear later in the disease, when the surface of the mucous membrane becomes white and skin-like in appearance. On attempting to retract the perineum it will be found impossible to do so; and not only will the natural elasticity of the parts be wanting, but that portion of the canal outside of the vaginal inlet will feel as if held tightly together by a strong band situated beneath the cutaneous surface—like a puckering-string around the mouth of a bag. While the brown spots are present the sensitiveness of the parts on which they are situated will be very marked, the slightest touch causing pain. This, coupled with the tenseness of the vulvar orifice, renders the act of coition always painful and often impossible.

In referring to the pathology of the disease those who have written on the subject speak of it as being a disease in which the cutaneous structure alone is affected. Tait says: "It is, in fact, a progressive atrophy of the mucous membrane, the last textures affected being the blood vessels and veins; for, when the process has been completed, the pain ceases, the redness disappears, and nothing remains but a vestibulum vaginæ, so narrow that incredulity may be excused when the patient states that she has borne children." Breisky says: "The skin and mucous membrane in the region of the labia majora and minora, of the perineum, and of the entrance shrink up, grow dry, and acquire a whitish appearance and are covered with a thick layer of epidermis. The number of sebaceous glands is diminished, the papillary body becomes cicatricial, the connective tissue sclerotic. Thereby the skin becomes tightly stretched, so that it tears extremely easily, so that even the pressure of the finger in examining makes deep rents."

I wish to add to the pathological points of the disease the fact of the presence of the previously mentioned band of fibrous tissue, which is entirely separate from the skin and mucous membrane, and has been found in the place of, and as an evident result of the degeneration of, the subcutaneous and submucous cellular tissue. I believe that the pathological changes that take place to constitute this disease begin with this fibrous tissue formation, and that the changes following in the skin and mucous membrane are to a considerable extent a result of this constantly increasing condition of fibrous degeneration underlying these structures. This new formation, by replacing the loose cellular tissue through which the nutrient vessels of the skin and mucous membrane pass, acting by gradual and continual contraction, as is peculiar to the elements of fibrous tissue, results not only in the firm and unyielding constriction of the vulva, but, in my opinion, also in the strangulation of the blood vessels which pass to and from the overlying skin and mucous membrane. This action would account for the spots of ecchymosis observed in these structures in the earlier stages of the disease, and the condition of atrophy of the later stage in which the active functional life is entirely obliterated. The presence of this new formation of fibrous tissue is of interest from a surgical standpoint, as it is evident that this band of constriction must be removed by any operation that is made for the relief of the

stenosis of the vulva. The removal of the degenerated mucous membrane containing the brown spots, as is usually recommended, will relieve the symptom of acute sensitiveness of the parts, but will have no effect on the stenosis. Patients who are said to recover spontaneously from the disease recover only so far as the sensitiveness of the parts is concerned, as the constriction of the vulva, due to this band of fibrous tissue, will exist as a permanent condition.

The case on which these notes on pathology were demonstrated was one occurring in my clinic at Harper Hospital and on which I performed an operation, the method of which as applied to this disease, so far as I am aware, is original with me. The operation is made in a manner analogous to Whitehead's operation for hemorrhoids, all of the diseased mucous membrane containing the spots being removed *en masse*, and healthy mucous membrane from above the vaginal inlet dissected loose from its basic attachments and slipped down and sewed to the skin in its place. As a result of the experience with my case I should also recommend the entire removal of this fibrous tissue which will be found underlying the diseased mucous membrane.

The history of the case is as follows: Mrs. S., in appearance thin, poorly nourished, anemic; age 54, married ten years, never pregnant; began menstruating at 16 and continued regular and normal until, after some irregularity, it ceased four years ago. With the cessation of the menstrual function she began to experience the symptoms which have been steadily increasing in intensity since then, and which at last brought her to my outdoor clinic for relief. She complained especially of a constant dull pain in the lumbar region and across the hips and at the top of the head. The pain in the hips often caused her to walk lame, and she called it rheumatism, and it was more especially for this trouble that she sought relief. No point of swelling or tenderness at the seat of pain could be discovered. In addition to these pains she also complained of a constant feeling of soreness of the vulva, and said this had been increasing so much that intercourse had become impossible and she had in consequence separated from her husband. Had some leucorrhea, which was often of a dull-pink color. Defecation and micturition normal. Inspection revealed the characteristic signs of kraurosis vulvæ in the active or middle stage, the hair being sparse and dry in appearance, the nymphæ shrunken to about half the normal size

and nearly devoid of the usual pigmentation, the vulvar orifice so small as to admit the passage of two fingers with great difficulty, and the tissues around it tense and undilatable, and the reddish-brown spots on the mucous membrane well marked and distributed generally on the surface from the nymphæ to the introitus vaginæ. The surface over which the spots were distributed, which comprised the vestibule, was exquisitely sensitive to touch, much pain evidently resulting from a very careful handling of the parts. The patient was sent to the hospital, and on December 10th, 1894, at my college clinic I performed the operation of complete removal of the mucous membrane of the vestibule in the following manner: An incision with scissors was first made along the lateral and posterior margins of the vulvar orifice, dividing the diseased mucous membrane from the skin; then seizing the margin of mucous membrane with dressing forceps, all of the portion above the incision was dissected loose from underlying tissues up to the vaginal inlet and cut away. The anterior surface was then denuded in the same manner, dissecting carefully around the urethral orifice. After removing all of the diseased mucous membrane in this way, the margin of healthy tissue above was grasped, pulled down, and dissected loose from the underlying parts, around the whole circumference of the vagina, for a sufficient distance upward to allow of its being easily brought down to the skin margin, where it was made fast, first with both interrupted and running sutures of catgut, and then with five deep interrupted sutures of silkworm gut. While dissecting the mucous membrane from the posterior portion of the vestibule the fibrous tissue before mentioned was laid bare, and it was remarked that its surface appeared perfectly white and bloodless. A section of the lower portion was dissected up and cut away; but it seemed so extensive, and not at the time realizing its true import, I decided to leave the upper part of the band and remove it at a subsequent operation, if it should be found necessary to do so. The wound healed immediately, with the exception of a small section on the left side which pulled away from the sutures and healed afterward quite tediously by granulation. The result proved entirely successful in relieving the patient of the extreme sensitiveness of the parts, but the contracted vulvar orifice was only slightly improved, its greatest constriction being within the vulva where the fibrous band had been left intact. The second operation will be per-

formed as soon as the patient can be prevailed upon to re-enter the hospital, but thus far she feels so much better than previous to the operation that it has been impossible to induce her to do so. The pain in the back, hips, and head is very much better, but not entirely gone.

Whether this improvement is due to the operation or to subsequent medicinal treatment is a question. This treatment consisted in the administration of general tonics and the extract of thyroid. The latter remedy seemed to act beneficially, but could not be pushed to any extent, owing to the fact that the patient refused to persevere in it because it caused a feeling of dizziness, even when used in doses of one grain three times a day.

The woman returned to her husband in a neighboring town about four months ago, promising to return in a few weeks, but thus far she has not put in an appearance.

698 WOODWARD AVENUE.

NEURASTHENIA ACCOMPANYING AND SIMULATING PELVIC DISEASE.¹

BY

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ALL specialists are more or less justly open to the criticism which the general profession sometimes makes concerning them—viz., that they are liable to ascribe most of the ills of humanity to derangements which they may find in the realm of their special practice. In other words, the specialist's horizon is very apt to be narrow, largely because in too many cases he has not had that broadening experience which comes from a few years of general practice, wherein the physician learns much of the mutual relations of different parts of the human organism in health and disease. It is feared that the same criticism has not unjustly been made against those members of our own specialty who find all the ills which woman's flesh is heir to resident in her genitalia. Nearly all women who suffer from chronic inflammatory disease of the pelvic organs also have neurasthenia to a greater

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or lesser degree. This also accompanies new growths of the pelvis in some cases.

What is neurasthenia? It is an exhaustion of the nervous system, especially the sympathetic nervous system, due to malnutrition. Systemic poisoning from pus, the nerve-depressing influence of constant pain, or the continuous drain of blood or muco-purulent discharges, together with other depressing influences, produce this malnutrition in cases of pelvic disease.

The symptoms are usually nearly the same in all cases. The woman is tired, constantly tired, especially in the morning and early part of the day. Her sleep is not restful. She may sleep well during the early hours and lie awake the rest of the night. Her sleep may be in snatches, or it may be disturbed by hideous and exhausting dreams. There is almost constantly a tired feeling in her head, and her eyes are weak and irritable. She especially complains of a dull, indescribable sensation which may be vertical, but usually is located in the lower occipital and upper cervical regions. Neuralgia, particularly of the intercostal and lumbo-abdominal types, is generally present. Backache in the lumbo-sacral region is one of the most persistent of all the symptoms. Despondency is the ruling condition. Timidity is a prominent symptom, and the apprehension of something awful impending makes life miserable. Usually there is a poor appetite and nervous dyspepsia. The more rest the patient takes, the less her nervous force is exhausted, the better is her digestion. Flatulence and constipation, it is needless to say, are found among the symptoms.

The least excitement brings on an attack of cardiac palpitation, and at times this comes without excitement. Often when the woman lies down she feels a sense of suffocation. It is not asthma; it seems to come in much the same way as the globus hystericus. These various symptoms lead the patient to be apprehensive of some severe organic trouble of the heart or lungs. At times the urine is scanty and thick; at other times it is abundant and as clear as water.

There are certain vasomotor disturbances, such as blushing and flushings of the face, red spots coming unilaterally, followed perhaps by extreme pallor and a cold sensation in the skin. Profuse perspirations occur as the result of excitement, exertion, or sleeplessness. The hands and feet are seldom warm; they are usually cold and clammy.

When none of the vital organs are structurally diseased in cases manifesting the above symptoms, we may safely ascribe these to the fact that the sympathetic nervous system which presides over vital phenomena becomes absolutely unable to furnish enough force to carry on the processes of nutrition up to the normal, and, being itself half-starved and weak, manifests its condition in those perturbations which have been described. Much has been written concerning those cases of disease of the pelvic organs which have been either unimproved or else made worse by operation. We must admit that many cases have continued, after operation, to have pain, hemorrhage, and exhausting discharges which have prevented recovery. But there are others in whom operation fails to give the expected relief, even though no cause for their continued invalidism seems to exist.

Even those who have pain, hemorrhage, leucorrhea, and their old tired and miserable feelings remaining, may, in a goodly proportion of cases, be cured if after operation the shattered condition of their nervous systems be appreciated and proper treatment addressed to its relief. When we have removed diseased structures from the woman's pelvis or abdomen, or have closed lacerations and restored her uterus to its normal position, our duty to her is not all done. Shall we send her home as soon as she can arise from her bed, and call her cured because we have performed an operation? When a fire is extinguished do we expect as the result of the act a restoration of the wrecked structure? Should we expect that a woman who has suffered for years, it may be, and whose nervous system is exhausted, whose red blood cells are few and of poor quality, and whose white cells are numerous and of those forms which show a depraved state of nutrition, will be restored to health simply because we remove the cause which has ruined her health? After we have removed the primary cause of her shattered health, should we not do something, if something we can do, to restore her exhausted nervous system, to set again in normal motion the machinery of nutrition and assimilation?

We have all seen those women who have been operated upon, who come to us to inquire whether Dr. Smith or Dr. Brown really did do the operation which he said would cure her. She is no better, has as much pain as ever, is pale, anemic, and tired. You will find that the woman probably was operated upon; the

operator took his fee; the woman went home in two or three weeks, never having had so much as a mild tonic prescribed after her operation. I have taken such under my care and in six weeks have sent them home on the high-road to recovery, and have had the satisfaction to know of their subsequent entire restoration to health.

Tonics benefit these women but slightly till nutrition begins again, when they are assimilated and aid greatly in completing the cure.

The treatment which above all others promises most for these neurasthenics is the Weir Mitchell rest treatment. It should be carried out quite rigidly, because when laxly done it is liable to fail. The rationale of the plan is based on sound physiological principles. The patient is placed in bed away from cares and worries. In order to avoid fatigue she is denied all visitors except one or two intimate and congenial ones for short periods. The diet is simple and nutritious. The secretions and excretions are regulated. Faradic electricity is sometimes given to exercise the muscles. Next to enforced rest, massage is most important, as it counteracts the ill effects of the former. It presses out of the cells the results of tissue waste; it squeezes on through the capillaries, veins, and lymphatics vital streams which would be over-sluggish without it. It is exercise without the use of volition or nerve force to produce it. The appetite increases; digestive power is augmented; the blood cells become normal in number and condition; the patient loses one by one the symptoms of which she has complained; sleep becomes more normal and restful; nutrition of the tissues increases; nerve force is stored up—in fact, in from three to six weeks the patient feels well enough to begin to sit up. It is necessary, in order to obtain the full benefit of the treatment, to be careful in not getting about too soon; careful in avoiding the assumption of household duties; careful for weeks in everything which pertains to work, worry, or excitement.

The above is a faithful picture of the majority of these cases. Occasionally there is one upon whom this treatment has no good or permanent effect. In all women who show much nerve exhaustion and anemia before operation I begin the massage as soon as they are able to bear it, usually during the first week after operation.

There is another class of women in whom neurasthenia simu-

lates pelvic disease. It occurs in those of the nervous temperament. It is a frequent ailment among our American women. It is seen alike among the rich and the poor, the fleshy and rotund as well as the thin and spare of form. Those of neuro-pathic tendencies, placed in the proper environment, with worry, over-work, over-excitement, over-anxiety, errors in diet and rest, too frequent childbearing, or excessive sexual indulgences, break down under the strain and nervous exhaustion is the common form of manifestation.

The symptoms described as accompanying pelvic disease are here present without the pelvic disease, but we frequently have its counterfeits. Painful menstruation comes to her who may never have had pain when she was well and strong. Leucorrhea may be a prominent symptom. Pain in the back, radiating through the pelvis into the groin and down the thigh, with or without frequent and painful micturition, seems certainly to point to some serious disease in the pelvis. There is generally a decline in sexual appetite, and the marital relations may become positively repugnant. In others there is an irritability of the sexual apparatus, followed by over-indulgence which only leads to greater exhaustion.

These women come to us expecting us to pronounce the verdict that the uterus, tubes, or ovaries in some way are the direct cause of their ills. On examination the pelvic organs are usually found to be tender. The pain resulting from their examination and the muscular tension may lead us to think that we feel enlarged and diseased structures. They should always be examined under an anesthetic before a diagnosis is made. If there is no pelvic disease the patient may safely be put into that class which Dr. Goodell so aptly describes in his chapter on "Nerve Tire and Womb Ills."

Correcting as far as possible the habits of the patient which led to the nerve tire, general tonic treatment and good environment, and above all else the Mitchell rest treatment, bid fair to do as much for these women as human skill has thus far devised. Many of them can be nearly or quite cured, and others only partially relieved. Removal of tubes and ovaries which are simply tender and not diseased always adds to their suffering.

Neurasthenia is often sneered at as "that fashionable American disease." Call it neurasthenia, nervous prostration, or what you will, the condition nevertheless exists. As it accompanies

pelvic disease, and as it simulates pelvic disease, it is a monstrous stumbling block at times to the brilliant results which our operations seem to promise.

64 RICHMOND AVENUE.

SOME OF THE ADVANTAGES OF, AND INDICATIONS FOR,
VAGINAL HYSTERO-SALPINGO-OÖPHORECTOMY IN
SUPPURATIVE PELVIC DISEASE.¹

BY

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THE operative results in suppurative disease of the pelvis, in the hands of the abdominal surgeon, form one of the proudest chapters in modern surgery. The mortality of these operations has been so steadily reduced and has reached such a low point that it would seem that perfection had almost been reached, were it not for the fact that recovery from the operation is not always synonymous with complete restoration to health. In other words, in many cases the symptoms complained of prior to the operation persist subsequently to a greater or less degree, or post-operative complications and sequelæ mar the benefits actually obtained by the surgical treatment. Schauta, who made a careful study of his cases subsequent to operation, finds that about eighty per cent of them were completely relieved of their symptoms; Chrobak obtained only fifty per cent of cures, while Landau estimates that sixty to seventy per cent of his cases were permanently benefited. While time will no doubt add to this list of cures a number of cases suffering from vasomotor disturbances (which are a direct physiological result of the ablation of the appendages, and which in the course of a few years will subside, restoring the patient to perfect health), there unquestionably remain many in whom the benefits of operation are marred by complications and sequelæ which persist to a greater or less degree to torment these poor patients. Every operator counts among his many successes a few such sad failures. While a more careful technique and a more thorough operation have unquestionably lessened the number of these cases very mate-

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rially, they have not entirely eliminated them. The study of the causes of these failures is a deeply interesting topic to every operator. Unfortunately the problem is still unsolved, though many of the causes leading to failure are quite well understood and avoided. I will allude to only two of these, and will classify them, for the sake of convenience, into *operative* and *inherent*.

By the *operative* I understand those complications and sequelæ directly attributable to the method of treatment—for example, hernia, intestinal and omental adhesions to the abdominal cicatrix, abdominal sinuses and fistulæ due to extraneous infection at the time of operation, etc.

Inherent refers to those complications and sequelæ which result from conditions existing in the patient at the time of operation, but which the operator failed to remove. They therefore continue to act as a source of disturbance and irritation to the patient. Unquestionably the most prominent among these are foci of infection left behind in adhesions, ligatured pedicles, silk infected by contact with septic pus, and, last but not least, a septic uterus. To be a little more specific, let us recall the fact that we are frequently dealing with very septic pus, containing virulent pathogenic micro-organisms such as streptococci, staphylococci, bacilli coli communes, tubercle bacilli, and many other varieties, which, in spite of our most painstaking asepsis, flushing, sponging, and careful drainage, will produce local infection in the abdominal wound, ligatures, or sutures, and will result in inflammation, suppuration, and adhesions. Even if we succeed in destroying the most apparent of these septic agents by a careful removal of the diseased appendages, we do not always remove the source of infection. We leave in the pedicles, in the sutures, and in the lymphatic system surrounding the uterus micro-organisms which continue to give rise to new disturbances. How else will you explain those cases which have gone home apparently well, but return to you weeks or months later with the old or similar complaints, and which on examination present distinctly a mass or exudate around the ligatured pedicle on one or both sides of the pelvis?

It was this fact, probably more than any other, which induced Péan and his followers to regard the uterus as the main source of infection and to practise uterine castration. Ségond went so far as to say that it was better for the patient to have her uterus extirpated and her diseased adnexa left than *vice versa*. It is

undoubtedly true that the uterus is usually the organ first invaded by infection, and that from there it extends to the peritoneum through the tubal orifices and lymphatics. That the uterus succeeds in throwing off these pathogenic micro-organisms at times, or that they may lose their virulence in the course of time and that the atrophic changes following ablation of the appendages may to some extent inhibit their growth, can be admitted, but that this is the rule we have strong reason to doubt. On the contrary, there is convincing proof that they establish a more or less permanent habitat, not only in the mucosa, but also in the muscles and in the connective tissue surrounding the uterus. To remove the adnexa without the uterus, then, means to leave an organ without function and without use, but containing elements capable of inciting disturbance and disease. Hysterectomy with salpingo-oöphorectomy in suppurative disease of the pelvis not only allows us to remove the nidus of infection more completely, thus being nearer an ideal operation, but it gives the patient the very best chance for complete recovery without adding any increased risk to the operation, for the mortality, in the hands of such men as Péan, Richelot, Landau, Leopold, and in our own country Krug, Baldy, Polk, Boldt, Sutton, and others, compares very favorably with that of salpingo oöphorectomy alone. Hystero-salpingo oöphorectomy is unquestionably the operation of the future—whether vaginal or abdominal still remains *sub judice*.

The vaginal method, practised almost exclusively by the French and many German surgeons, has many features to recommend it. It precludes the possibility of ventral hernia, and intestinal and omental adhesions to the line of incision. It is generally admitted to be followed by less shock, because of the minimum exposure of the peritoneum during the operation and absence of manipulation of the abdominal viscera. In suppurative disease of the pelvis the intestines are frequently agglutinated into a mass, forming a protecting roof above the infected pelvis and a natural and efficient barrier against infection of the peritoneal cavity. In the vaginal method this is left undisturbed. This operation is thus made practically extraperitoneal, while in the abdominal method this barrier (which has such an important rôle) has to be broken through before the actual seat of disease can be reached, thus exposing the softened intestines, which are often friable, to risk of injury during the necessary

manipulations, and exposing the peritoneal cavity to the danger of contamination from septic pus set free by the rupture of abscess cavities. Drainage per vaginam is the best possible. Removing the uterus is like knocking the bottom out of a basin, so far as drainage is concerned. Convalescence is more rapid and recovery more complete. My experience has been that the patients are able to leave their beds in from a week to ten days. This operation leaves no sutures and ligatures, and does away with the danger of mural abscesses, sinuses, and fistulæ.

The objection to vaginal hysterо-salpingo-оöphorectomy most frequently raised—that the operator has to work in the dark—can come only from those who have not had an opportunity of seeing the operation properly done, for in the majority of cases the judicious use of retractors and the close observance of a good technique give the operator just as good a view of the field of operation as he has in the abdominal method even when employing the Trendelenburg position. Intestinal adhesions can usually be separated with equal ease.

That a very narrow vagina, partly obstructed by a number of clamps, may present very great difficulties in the enucleation of firmly adherent adnexa cannot be denied, but with patience and the experience previously gained in abdominal operations in such cases (and this is invaluable in the vaginal method) failures should be rare. In only two of the cases reported in this paper were fragments of the ovaries left, because they were so friable and soft that they had to be removed in shreds. In the abdominal operation the same might occur in similar cases. In exceptional cases an incision through the pelvic floor, as practised by Dührssen, will give abundant room for the necessary manipulations. That injuries to the rectum, bladder, and ureters are common in vaginal hysterectomies is a theoretical conclusion not borne out by facts. On the contrary, the ureters at least have been damaged during abdominal hysterectomies more frequently than in the vaginal method. In my own experience there have been no such injuries to these organs.

Indications for Vaginal Hystero-Salpingo-Oöphorectomy.—This operation is indicated in all cases of bilateral disease of the adnexa which require the removal of both ovaries and tubes, but whenever there is the slightest possibility of conservative treatment the uterus should under no circumstances be sacrificed. Since December of last year, at which time I began doing vagi-

nal hysterectomies for suppurative and inflammatory diseases of the appendages, I have followed this rule with very few exceptions. Among forty cases of this character I performed celiotomy fifteen times with the ablation of one or both adnexa, and vaginal hystero-salpingo-oöphorectomy twenty-five times—eighteen times for puriform disease. Among the latter there have been no deaths. In only one case I decided against vaginal hysterectomy because of the difficulty I expected to encounter by this method. It was unmistakably a case of serious lesion of both adnexa, in which the symptoms pointed to partial intestinal obstruction and in which laxatives gave rise to violent colicky pains and visible peristaltic contractions. I performed celiotomy in order to be better able to deal with intestinal adhesions, which seemed to extend as high up as the umbilicus. On section the intestines were found matted together and adherent to the anterior abdominal wall. A separation of this intestinal mass seemed an almost impossible task, but with great difficulty the pelvis was finally reached and the diseased adnexa removed *with* the uterus. The pathological condition was a tuberculosis, primarily of the appendages, but involving the uterus, omentum, portions of the intestines and peritoneum. The patient made a good recovery and is now, more than six months after the operation, a picture of health.

In addition to this general indication there are some special conditions in which vaginal hysterectomy seems to me to possess some superior advantages over celiotomy. In cases in which the pelvis contains active pathogenic micro-organisms the disease foci can be removed with less danger of infecting the peritoneum and with less fear of post-operative complications. There is, unfortunately, no bacteriological guide to these cases, but I believe that clinically such cases can be recognized with some degree of certainty. They are those cases that have had recent and frequent severe attacks of pelvic peritonitis. Another class of cases, in which, in my opinion, uterine castration especially, with simple evacuation of the pus cavities, is indicated, are patients even now met with in general hospitals, with general hectic symptoms, greatly exhausted, septic, bed-ridden, and emaciated to skeletons. My experience has demonstrated to my own full satisfaction that cases in such a pitiable condition rarely survive the shock of an abdominal section. I believe that if we incise Douglas' pouch and freely open all pus

sacs, or, when this cannot be done in this manner, remove the uterus and simply open and drain the abscess cavities, we will frequently have the gratification of having saved a human life. Vaginal hysterectomy is the operation *par excellence* in cases in which abdominal section has been followed by long-persisting sinuses and fistulae caused by incomplete operations, septic ligatures, etc., and in which a secondary operation is indicated to bring about a cure. Celiotomy in such conditions is not only extremely difficult at times on account of the numerous and firm intestinal adhesions, but also dangerous on account of the difficulty of doing an aseptic operation. Vaginal hysterectomy removes the septic foci and provides abundant drainage without disturbing the adherent abdominal viscera and infecting the peritoneal cavity. No. 6 on my list was such a case. About a year previously a celiotomy was done and a pus tube enucleated. The adhesions about the other tube and ovary were broken up, but its removal was not permitted. The patient never fully recovered from the operation. Attacks of peritonitis, with numerous fistulous openings through the abdominal wound, kept her confined to her bed almost continuously during the whole year and reduced her very much. She finally consented to a radical operation, which was performed per vaginam. The operation proved to be very difficult, the fundus of the uterus being cemented in masses of adhesions, but the patient made a good recovery and has enjoyed good health since. In another case (No. 4 of my list) the abdomen had been opened twice, by two different surgeons, for the purpose of removing diseased appendages, but both times unsuccessfully on account of their inability to separate the very firm adhesions. The last attempt was followed by extensive suppuration of the abdominal wound, confining the patient to bed for over six weeks. Since the last operation the patient was a confirmed invalid. The pelvis was filled with large masses on both sides of the uterus. Though the patient had a very small vagina, hysterosalpingo-oöphorectomy was successfully performed. From this operation the patient made a good recovery.

The technique adopted in these cases has been the multiple clamp method of Jacobs. In only two cases I employed a combination of Pratt's method with the clamp method. The cervix was freed from its vaginal attachments; the tissues, including the uterine artery, dissected away from the uterus, until the

Case number.	Age.	Number of children.	Number of miscarriages.	Diagnosis.	Operation.
1	37	Seven.	None.	Septic endometritis, bilateral pyosalpinx.	Vaginal hystero-salpingo-oöphorectomy.
2	33	None.	One.	Bilateral pyosalpinx.....	Vaginal hystero-salpingo-oöphorectomy.
3	31	Five.	One.	Bilateral pyosalpinx.....	Vaginal hystero-salpingo-oöphorectomy.
4	19	.....	.....	Abscess of left ovary and tube..	Vaginal hystero-salpingo-oöphorectomy.
5	22	None.	None.	Endometritis, pyosalpinx.....	Vaginal hystero-salpingo-oöphorectomy.
6	28	One.	None.	Degeneration of left tube and ovary.	Vaginal hystero-salpingo-oöphorectomy.
7	26	None.	None.	Bilateral pyosalpinx.....	Vaginal hystero-salpingo-oöphorectomy.
8	..	Three.	None.	Perineal tear (complete), metritis, oöphoritis.	Vaginal hystero-salpingo-oöphorectomy.
9	34	Four.	Three.	Metritis, salpingitis.....	Vaginal hystero-salpingo oöphorectomy.
10	30	One.	None.	Uterus enlarged and retroflexed; pyosalpinx.	Vaginal hystero-salpingo-oöphorectomy.
11	36	Seven.	None.	Endometritis, pyosalpinx.....	Vaginal hystero-salpingo-oöphorectomy.
12	39	None.	Six.	Bilateral pyosalpinx.....	Vaginal hystero-salpingo-oöphorectomy.
13	37	Four.	One.	Endometritis, salpingitis.....	Vaginal hystero-salpingo-oöphorectomy.
14	25	None.	None.	Retroversion, endometritis, salpingitis.	Vaginal hystero-salpingo oöphorectomy.
15	42	Five.	One.	Retroflexion, endometritis, bilateral pyosalpinx.	Vaginal hystero-salpingo-oöphorectomy.
16	34	Five.	One.	Retroflexion with adhesions, endometritis, bilateral pyosalpinx.	Vaginal hystero-salpingo-oöphorectomy.
17	23	One.	None.	Endometritis, bilateral pyosalpinx.	Vaginal hystero-salpingo-oöphorectomy.
18	30 (?)	Two.	None.	Rectocele, cystocele, lacerated cervix, bilateral pyosalpinx, small cyst of left ovary.	Vaginal hystero-salpingo-oöphorectomy.

NOTE.—Since the above was written four other pus cases have been operated upon by the same method, and have all made a good recovery, making in all twenty-two cases.

Date.	Pathological condition.	Result.	Remarks.
December, 1894.	Abscess at right corner of uterus; one ounce pus. Tubes friable and contained pus. Ovaries friable.	Recovery....	Pus was discharged freely through vagina from uterus and tubes. No symptoms of infection of peritoneal cavity.
December 28th, 1894.	Tubes contained pus.....	Recovery.	
January 2d, 1895.	Uterus large and soft. Tubes contained pus.	Recovery....	Uterus perforated during preliminary curetting. Pus poured from vagina as each tube was removed.
March 15th, 1895.	Cyst of right ovary. Abscess of left ovary and tube. Intestines adherent to uterus and to each other. Two abdominal sections had been done by other surgeons, but nothing could be removed and wound closed.	Recovery....	During operation cyst fluid and pus flowed freely through vagina. Field thoroughly washed and operation proceeded with. Wall of intestines forming roof to pelvis not disturbed.
April, 1895.	Uterus enlarged, adherent. Tubes contained pus.	Recovery....	Profuse bleeding. Uterus turned out backward.
March 19th, 1895.	Vagina very small. Uterus bound firmly to bladder and fixed in a mass of adhesions.	Recovery.	
March 30th, 1895.	Pus tubes.....	Recovery....	Pus poured from vagina as adhesions were removed.
April 6th, 1895.	Uterus enlarged. Small interstitial fibroids. Tubes contained blood and pus. Ovaries diseased.	Recovery ..	Quite bloody, but bleeding points secured. In sponging a piece of gauze was lost in cavity, but gave rise to no bad results.
April 13th, 1895.	Friable uterus. Adherent pus tubes.	Recovery...	Friable uterus caused trouble in its removal. Adherent tubes a little hard to get at.
May 16th, 1895.	Friable uterus. Pus tubes ..	Recovery.	
May 26th, 1895.	Pus tubes.....	Recovery....	Removed by morcellement.
May, 1895.	Uterus.—Adherent to intestines; small fibroid at fundus. <i>Adnexa</i> .—Pus in both tubes—three ounces in left.	Recovery....	Removed by morcellement.
July, 1895.	Uterus very friable. Tubes thickened and contained pus. Ovaries degenerated.	Recovery....	Removed by morcellement.
July 9th, 1895.	Left tube contained pus. Right ovary and tube firmly adherent.	Recovery....	Uterus removed by morcellement.
September 9th, 1895.	Pus tubes. Very firm adhesions. Mass behind uterus.	Doing well. ¹	Cervix amputated, uterus split to fundus and morcellated. Pus escaped as left tube was being removed. Mass three-quarters by one and one-half inches removed from behind uterus. Clump of adherent intestines formed wall between pelvic and abdominal cavities.
September 12th, 1895.	Pus tubes. Very firm adhesions about internal os, at which point uterus was as hard as cartilage.	Doing well. ¹	Adhesions so firm as to require use of scissors in separating uterus from rectum.
September 14th, 1895.	Pus tubes.....	Doing well. ¹	Pus escaped as right tube was being removed.
September 14th, 1895.	Adhesious. Pus tubes. Cyst of left ovary.	Doing well. ¹	Bladder firmly adherent, requiring use of scissors. Behind uterus inflamed and adherent intestines formed a cavity that felt like that left by cancerous degeneration.

¹ Has since fully recovered.

peritoneal cavity was opened in front and behind the uterus. The cervix and the lower portion of the uterus, thus bared of surrounding tissue, was then amputated. The fundus was split into halves, which were trimmed until a mere strip of uterine tissue was left alongside of the broad ligaments, enough being left, however, to afford a secure hold for a volsella forceps with which to make firm traction on the adnexa. After freeing these from their adhesions a clamp was applied to the remaining broad ligament external to the adnexa, and the latter cut away. In both cases the result was all that could be desired. The advantages of this method are that it leaves only two clamps in the vagina after the operation is completed, that the vagina remains unobstructed for the necessary manipulations, and that it does not interfere with the drainage of the pelvic cavity. In a third case in which I attempted this method the uterus was so extremely soft and friable that in stripping back the tissues from the uterus the latter was perforated in numerous places, so that the multiple clamp method had to be resorted to. My experience with this operation has, therefore, not been sufficient to warrant an opinion, but if hemorrhage can be avoided with the same certainty as by the clamps it is undoubtedly much superior to the multiple clamp method.

In conclusion, let me say that probably in no other operation is it so indispensable to be provided with a good instrumentarium. It is particularly important to have a number of good, reliable clamps and volsella forceps. In this class of cases you are not dealing, as a rule, with a freely movable uterus which by a little traction can be brought before the vulva, as in the cases requiring hysterectomy for malignant disease: on the contrary, the uterus is frequently embedded in a mass of adhesions, from which it can be removed only by a tedious and often difficult process of morcellation. Without special and carefully made instruments the operator would not only have his patience and coolness put to a very severe test, but would find the operation an almost impossible task.

OPERATIONS FOR RETRODISPLACEMENT OF THE UTERUS.¹

BY

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HART AND BARBOUR classify the various operations which have been devised for retrodisplacement of the uterus under the following heads:

(a) Operation through the vagina, causing tension upon the cervix by cicatrization.

(b) Operation upon the round ligaments to shorten them.

(c) Operations to obtain peritoneal adhesions by tacking the fundus to the anterior abdominal wall until it becomes fixed there.

Under the first head we have :

1. Rabinau's operation. He amputates the anterior cervical lip high up, and claims that the resulting cicatrization causes the uterus gradually to become anteфлекed. He reports six cases, but they were not observed long enough to pronounce on the ultimate results.

2. Mackinrodt, of Berlin, advocates sewing the fundus to the vagina through a longitudinal incision in the anterior fornix. The objection to this method is that it would result in a fixed anteфлекion of an aggravated type, and is, therefore, illogical and unsurgical.

3. James B. Hunter has suggested sewing the cervix to the posterior fornix, thus keeping the fundus in anteversion. This is, of course, applicable only in a freely movable and retroverted uterus without adhesions. It is evident that it would increase retroфлекion and produce retroфлекion in an adherent retroverted uterus.

4. The operation which is more to be condemned than any of the above—namely, that of Schücking—is the one which suggested to the writer the operation about to be described. It has, however, already been suggested and practised by

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia.

Dr. Fritz Baum, of Kansas City, who reports eight cases successfully operated upon.¹ Schüeking passes a curved, guarded needle into the uterine cavity. The point is then extended so as to go through the anterior wall of the uterus (presumably at a point below the fundus), the utero-vesical peritoneum, and the anterior fornix of the vagina. A thread is carried through and tied. At the end of ten or twelve days the thread is removed, sufficient irritation having been excited by it to cause adhesions in the utero-vesical pouch. He reports eleven cases in which permanent antelexions were produced.

This method has no advantage over that of Mackinrodt, is open to the same objection, and presents an additional danger which is even a probability—that of piercing the bladder. All these operations result in what their advocates claim for them, namely, a permanent antelexion. Antelexion is a malposition often producing symptoms quite as annoying as uncomplicated retrodisplacements. This is, therefore, the serious objection to these operations.

Under the second heading are to be considered the operations which depend upon the shortening of the round ligaments. These are two:

1. The Alexander-Adams operation. This is only applicable in cases of freely movable retroverted or retroflexed uteri without adhesions. The round ligaments are dissected up in each inguinal canal. They are then drawn upon until the fundus uteri is in normal position, and are stitched securely in the canal again.² Mundé considers this the most successful, the most logical, and the least dangerous operation. He reports sixty-five cases with marked success as to immediate and permanent results, succeeding in keeping the uterus in position for years after the operation. Pregnancy with normal delivery followed in twelve cases, the uterus subsequently retaining the position in which it had been placed. In one case he examined the patient in her fifth confinement following the operation, and found the uterus in its normal position.

On the other hand, he mentions the following objections to the operation: "That it is an uncertain one, for one never knows when one will find thick, strong, easily tractable ligaments, or ligaments which are thin, adherent, readily broken and can then

¹ Journal of the American Medical Association, August 11th, 1894.

² Keating and Coe, Clinical Gynecology, 1895.

no longer be recovered. This may be at times the fault of the operator, but also at times of the anatomical structures themselves, and no man can tell before he has opened the inguinal canal and found the ligaments whether they will be thick or thin, weak or strong, easily sliding in their sheaths or adherent along their whole track. Besides, the operator has to keep his wits about him, or he will easily miss the pubic attachment of the ligament and then pronounce the operation a fraud. But I can safely say that a failure to find the ligaments is always the fault of the operator; the other accidents he is not responsible for."

These objections are well founded on the experience of many operators, and on account of them the operation has not gained that popularity which was expected for it. It frequently requires prolonged and careful dissection and is therefore tedious. It is not free from danger, as deaths have been reported from it.

2. Wylie's method. This was designed to meet the difficulty of adhesions. It consists of opening the abdomen, breaking up adhesions, shortening the round ligaments by doubling them upon themselves, sewing the doubled surfaces together and to the peritoneal covering of the uterus. The method is also applicable to cases where celiotomy has to be performed for other causes. Polk, Dudley, and Mann have practised this method, and all speak highly of it. Its chief objection is the necessity for celiotomy.

Under the third heading we have those operations which are designed to bring about adhesions between the fundus uteri and the anterior abdominal wall. Various methods have been tried. The great objection to them all is the necessity for celiotomy, and in the writer's opinion they are not justifiable unless it is necessary to open the abdomen for other purposes, such as breaking up adhesions or the removal of diseased appendages. It will suffice to mention the following: After removing the uterine appendages, fixing one or both pedicles into the abdominal incision; stitching the round ligaments to the abdominal wall; and Leopold's method, which is decidedly the best, of carrying two or three of the sutures used to close the abdominal incision also through the upper anterior aspect of the fundus.

Another method of supporting the retrodisplaced uterus after celiotomy may be mentioned here. A glass drainage tube is

passed into the pouch of Douglas. It acts as a support to the uterus, and the resulting adhesions are relied upon to keep the uterus in place. Polk records four cases in which he did this, and Koltz used the tube in addition to fixing the pedicle of the uterine appendages in the abdominal incision. This method can be looked upon only as crude and unsurgical.

Leopold's operation is the one which commends itself most strongly when celiotomy must be performed. Mundé urges two objections to it: first, the danger always inseparable from abdominal section; and, second, that an organ of the body which is naturally movable is thereby immovably attached to the anterior abdominal wall. It has been claimed that it results in painful pregnancy and abortion. The first objection will always hold. A few modifications in the technique of the operation suffice to overcome the second. Leopold scarifies the fundus, in order thereby to obtain strong adhesion between it and the abdominal wall; and, furthermore, the sutures which fix the uterus pass entirely through the skin, fasciae, muscle, and peritoneum. Both of these procedures are objectionable. It is not desirable to obtain firm adhesion of the fundus to the anterior abdominal wall, because the uterus would be elevated out of its normal position and fixed there. Under such conditions abortions following pregnancy are not to be wondered at. The following method of performing this operation is now employed by most operators and meets the objections:

Avoiding any traumatism to the fundus except that caused by the needles, one or two sutures are passed through part of the rectus muscle and peritoneum on one side, then into the *posterior* aspect of the fundus, taking care that the needle emerges on the fundus at least a quarter of an inch from its point of entrance. The needle is then brought out through the peritoneum and part of rectus muscle on the other side. This is done as low down and as near the lower angle of the incision as possible. Care is taken not to include the fascia of the rectus in these stitches. The result of catching the uterus on the posterior aspect of the fundus is to throw it well forward into a comparatively normal position. The advantage of not scarifying the fundus, and of including only peritoneum and a few fibres of muscle in the fixation sutures, is that in time the uterus sinks by the stretching of both the uterine and parietal peritoneum, thus forming a ribbon-like adhesion which suspends the uterus.

The uterus is then not only slightly tilted forward, but has sunk into its normal position.

Within the past year the writer has assisted Dr. Penrose in two operations in each of which the above condition was found. The first case was one which required hysterectomy for tubercular disease one year after the ventrofixation. The ribbon-like adhesion was about two inches in length, and broader at its points of attachment to the fundus and abdominal wall than at the middle where the stitches were found encysted. The uterus lay in a normal position. There were no other adhesions. In the second case the patient required oöphorectomy for cystic disease six months after the fixation operation. The band was about one inch in length and as thick as a lead pencil. There were no other adhesions.

Passing thus hastily in review these various operations, we note that they may be broadly classified under two heads:

1. Those operations in which celiotomy is necessary, and
2. Those in which celiotomy is not necessary. When celiotomy is necessary the modified Leopold operation is our choice. When celiotomy is not necessary the Alexander-Adams operation is most to be commended.

All will agree that an operation for the restoration of a retro-displaced uterus which is free from the objections of the operations mentioned above and which shares their advantages is greatly to be desired. Theoretically the operation about to be described should meet these requirements. It is applicable not only to cases of non-adherent retrodisplaced uteri or when the adhesions are so frail that they can be broken by gentle vaginal massage, but also in cases where it may be found necessary to open the posterior fornix to facilitate the freeing of adhesions. It is indicated, therefore, whenever the operations of Rabinau, Mackinrodt, Hunter, and Alexander are justifiable, and in many cases where Leopold's operation would otherwise be indicated. It is as follows: A one inch or a one-half inch incision is first made in the abdominal wall about one and a half inches above the symphysis pubis. It is immaterial whether this incision be perpendicular or horizontal. Care should be taken not to carry the incision deeper than just through the superficial fascia. The incision is then packed with antiseptic gauze and the patient placed in the dorsal position. The

next step is to fully dilate the cervix and thoroughly curette the uterus, paying special attention to the fundus.

The cavity of the uterus should then be carefully disinfected with a 1:4000 or 1:2000 solution of bichloride of mercury and subsequently douched with distilled water. The patient is then placed in the Trendelenburg position, and, the legs being held apart by an assistant, the operator introduces a long canula into the uterus until the fundus is reached. With this instrument the fundus is pressed against the abdominal wall immediately opposite the abdominal incision. Through the canula a long needle, eyed at the point, is then passed and made to pierce the fundus, parietal peritoneum, rectus muscle, and deep fascia. The needle is then threaded with strong catgut or kangaroo tendon and the suture drawn through to the mouth of the canula. The needle, now armed, is again carried through the same structures as before, taking care to pierce them at a point about a quarter of an inch away from its first path. The suture is now drawn out of the eye of the needle, which with the canula is laid aside. The two ends are now tied, a small nick first being made in the deep fascia in order to bury the knot, and the superficial fascial incision closed. By burying the suture below the deep fascia we are more apt to obtain the ribbon-like adhesion referred to in the modified Leopold operation. If thorough asepsis of the uterus is obtained, no trouble should arise from the exposed portion of the suture in the uterine cavity. The vagina should be packed with sterile gauze, which should be removed in twenty-four hours, and bichloride vaginal douches given twice daily for three or four days.

It may be objected that there is grave danger of wounding intestine. But it must be remembered that the operation is designed only for cases where there are no adhesions and for those cases where they have been broken up by massage; that the patient is placed in the Trendelenburg position, which favors the falling away of the intestines from the uterus; that under deep anesthesia and through the superficial incision the fundus of the uterus should be easily felt impinging on the abdominal wall.

The great advantage claimed for this operation is that, without celiotomy, it accomplishes the same results as the modified Leopold operation—namely, the formation of a ribbon-like adhesion or suspensory ligament which will allow the uterus to find its normal anatomical position.

The Trendelenburg position is not necessary if the operator prefers to open through the posterior fornix. The finger can then be used to break up adhesions and also to keep the intestines out of the way while introducing the suture. There can be no objection to employing two sutures, if deemed expedient.

Dr. Baum¹ calls the operation gastro-hysterorrhaphy. The name is misleading and does not describe the method. The writer suggests for it intrauterine ventrofixation.

Baum's technique is practically the same as that described, except that he uses a rather complicated instrument called a uterine ventrofixator. "It consists of a hollow tube, like a big uterine sound. Within this there is a piston-like rod with a handle at the outside, and two needles threaded to one thread at the end inside." With this instrument he is able to pierce the fundus and with one thrust place his suture.

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A NEW POSTURAL METHOD OF TREATING PROLAPSUS OF THE UMBILICAL CORD.

BY

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PROLAPSUS of the funis is a serious complication of labor, chiefly because of the increased dangers to the child. Hecker placed the infantile mortality at 37.6 per cent, Scanzoni and Churchill at 53 per cent, and Charpentier at 79 per cent. The writer studied the causes of death in 167 still-births from the records of the New York Bureau of Vital Statistics, and found that 28 per cent were attributed to compression of the umbilical cord. We are justified in concluding, from the very lowest estimate, that in one-quarter of the cases in which this complication exists the child is lost.

The nature of the presentation, the shape of the pelvis, and the duration of the labor are modifying prognostic circumstances. The early discovery of the prolapsed cord before the rupture of the membranes offers a far better prognosis for the child than the case in which a considerable portion of the cord

¹ Journal of the American Medical Association, August 11th, 1894.

is found prolapsed after the waters have escaped. The greatest danger to the child is offered by the association of prolapsus with vertex presentation. According to Engelmann's studies only 36 per cent of such children survive. Presentations by the shoulder or breech offer a much better prognosis—50 per cent living children. In primiparæ the infantile mortality is far greater than in multiparæ.

The postural treatment for this unfortunate complication was first suggested by Thomas. The woman being placed in the genupectoral position, the body of the uterus tends to sink lower than the cervix, and the replaced cord, owing to the same force of gravity, tends to slip down to the fundus and out of harm's way. The position, however, is an arduous one for a woman in labor, particularly if it is to be kept up for any length of time.

Over a year ago, while preparing the chapter on prolapse of the cord for the William F. Jenks Prize Essay,¹ it occurred to me that the same result could be obtained in a far simpler manner and with less discomfort to the patient and attendant by raising the pelvis to a sufficient height with the woman on her back. At that time I wrote: "Theoretically the Trendelenburg position ought to be followed by the same result."

Since then two opportunities presented themselves for testing the efficacy of the method. As both children were saved in spite of the worst possible surroundings and absence of nearly all conveniences, I do not apologize for giving the histories. I merely trust that the method may be given a fair trial by those having larger fields for observation.

CASE I.—Mrs. R., æt. 33, mother of six children. Previous confinements usually easy. Present labor has lasted several hours under the care of a midwife, who has made the diagnosis of cross-birth. On my arrival in the dingy basement I found a large, flabby woman—probably weighing two hundred and fifty pounds—in labor on a cot-bed. On external palpation the fetal head was readily felt to the right and the breech to the left. The fetal heart sounds were rapid, but audible to the naked ear. On internal examination the os was found to be fully dilated and the membranes protruding but unruptured. The examining fingers failed to reach any presenting parts. An external version was readily effected by placing each hand at the opposite

¹ "Infantile Mortality during Labor, and its Prevention."

pole of the fetus and rotating the child so as to get a breech presentation. Vaginal examination now revealed the membranes still unruptured, left foot presenting anteriorly, and, to the right, about six inches of pulsating umbilical cord. I now sent for Dr. M. Cisin, who gave chloroform. An ordinary cane chair was placed upside down at the foot of the bed and covered with a pillow and sheet. With considerable difficulty the very heavy woman was dragged up the incline on her back, so that the pelvis was several feet higher than her head. I now introduced my entire hand into the vagina, pushed the cord very easily into the uterine cavity, ruptured the membranes, and placed a new sponge against the late seat of the prolapsed cord. I next seized the presenting foot and delivered it with a good portion of the breech. After some difficulty the second foot was brought down. As the child was presenting with its abdomen anteriorly—a threatening condition for the child—I seized both feet and rotated the body of the child on its long axis, so as to get the dorsum anteriorly. The chair was now removed and the patient dropped to the level of the bed, so as to facilitate further manipulations. The shoulders and arms gave rise to considerable difficulty in their delivery, and the right humerus was fractured in the forcible efforts used. The head—using the Prague method—was readily extracted. After being born the child was found to be cyanotic and in a condition of suspended animation, although the pulsations of the cord were quite strong. Muscle tonus being distinctly present, the cord was quickly cut, allowing a little blood to escape from the fetal end. A little shaking up, after clearing the throat of mucus with the finger, was sufficient to start respiration, and shortly afterward the child began to cry. The mother, in the meantime, was losing considerable blood from a partially detached placenta. Efforts at expression failing, I was obliged to resort to the manual removal of the placenta. After an intrauterine douche and a dose of ergot the mother was turned over to the midwife. The baby was found to weigh ten pounds. A plaster-of-Paris splint was applied to the broken humerus. Mother and child made an uneventful recovery.

There is no question in my mind but that the elevation of the pelvis in this case was entirely successful in keeping the prolapsed cord out of harm's way until delivery was completed, and was chiefly instrumental in saving the child's life. At least six

inches of cord presented in advance of the child's foot. If left to Nature the cord would naturally have come down more and more as the child's body advanced. Compression would have taken place to such an extent as to have cost the child its life.

CASE II.—Mrs. F., æt. 28, third confinement. Previous labors fairly easy. The midwife, after being in attendance the entire day, went off for an hour. On her return she found the membranes ruptured and a large loop of the umbilical cord in the bed. On my arrival, about an hour later, I found about twelve inches of prolapsed cord in bed and a complete absence of labor pains; the cord pulsated one hundred and fifty times to the minute. On internal examination the os was found fully dilated; the right hand presented, and above this could be readily felt the face with the chin posterior. A hopeless prognosis as to the child was given. Immediate action was indicated in the interests of the child, so that anesthetics and assistants were dispensed with. The foot-piece of the bed being about eighteen inches above the plane of the bed proper, an incline was quickly made with a washboard and an ordinary piece of board. These were covered with a pillow and the woman drawn up the incline so that the pelvis was elevated. Seizing the cord with the hand, it was pushed back into the uterine cavity. The presenting hand and face were now pushed to one side and the right foot drawn down. The cord again presented to a small extent and remained prolapsed during the remainder of the manipulations. The opposite foot was next delivered, then the shoulders, and finally the head. The entire manipulation did not exceed five minutes in duration. The child was born asphyxiated to the first degree, but the escape of a little blood from the divided fetal end was sufficient to resuscitate it. Both mother and child were doing nicely on the following day.

The second case was not as perfectly successful as the first in the complete reduction of the cord. This I attribute to the long duration of the prolapsus (probably an hour and a half), the considerable length of the cord prolapsed, the absence of a sponge to keep it in the background, and the absence of anesthesia and assistants. The fact that the child was notwithstanding born alive is all the more marvellous. I was very much impressed in this case with the ease with which the prolapsed hand and face were turned to one side and the podalic version performed. I cannot help thinking that the elevation of the pelvis proved of great value in bringing about the happy result.

Since the above was written another case was met and treated in a similar manner. The history in brief is as follows: A woman in her second confinement was taken with a slow labor on the morning of November 7th. The midwife, who was in attendance all day, noted very little progress. Toward evening, with the os dilated to the size of a fifty-cent piece, the membranes ruptured and a loop of the umbilical cord presented in advance of the vertex. An hour and a half later, when I arrived, I found a highly hysterical woman with feeble labor pains. An examination revealed a somewhat contracted pelvis, a cervix not fully dilated, a vertex presentation with head movable above the brim, and, in the vagina, about six or eight inches of pulsating umbilical cord. Under chloroform anesthesia, given by Dr. M. Cisin, the patient was drawn up an improvised incline at the foot of the bed, so that the pelvis was elevated to a height of eighteen inches, and the legs and thighs kept extended (Walcher's method). After a little difficulty the cord was pushed back into the uterine cavity and kept back with the aid of a sponge which had previously been boiled. Forceps was applied, but the movable condition of the head and the somewhat diminished conjugate diameter decided me, in the interests of the child, to relinquish them and resort to version. There was no especial difficulty in pushing up the head and getting down a foot, but during the manœuvres the cord was again brought down. No effort was now made to replace the cord, my only object being to rapidly complete delivery. The body to the neck was delivered with surprising ease, but the birth of the head required considerable traction (Prague method). The child was born in the second stage of asphyxia and required a half-hour's efforts at resuscitation before it could be safely left alone. The case impressed me with the following points: 1. The advantage of the elevated hip position combined with extension of the thighs in increasing somewhat the antero-posterior diameter of the pelvis. 2. The ease with which a prolapsed cord can be replaced and kept back with the aid of a fairly large piece of boiled sponge pushed between the presenting part and the pelvic wall (as suggested years ago by Renshaw). 3. The ease with which the presenting head can be pushed up and a leg brought down. 4. The short time in which a version can be done.

THE VAGINAL ROUTE IN THE TREATMENT OF PELVIC INFLAMMATION.¹

BY

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IN presenting this paper I am fulfilling a promise made your body a year ago. During this time the importance of the subject has been emphasized by the report of the work of Jacob in vaginal hysterectomy and the admirable paper by Henrotin, read in Baltimore, on "Vaginal Incision in Acute Pelvic Inflammation." The constantly decreasing mortality, with improved technique of operative procedures through the abdomen, with the added facility for exploration by sight and touch, has caused the majority of pelvic surgeons to hesitate in the choice of any other course. Despite the brilliant results attained, however, it cannot be denied that the abdominal procedure has its limitations and its disadvantages. In every inflammatory process of the pelvis, as suppuration occurs, Nature guards the important peritoneal cavity by establishing an exudative barrier which not infrequently holds in restraint a large purulent collection. Abdominal invasion means that the provisional barriers shall be broken down, extensive adhesions separated, and the peritoneal cavity more or less soiled; that subsequent drainage must be against gravity; and that the patient must subsequently be endangered by the formation of unfortunate adhesions.

Not infrequently it will be found that a pyosalpinx has ruptured into the broad ligament, forming a large pus collection, or a broad-ligament abscess has occurred independent of or without tubal disease where the peritoneal cavity is free from involvement. To evacuate it through the peritoneum endangers infection of the latter; to close the abdomen and incise through the vagina demonstrates the abdominal incision an unnecessary procedure.

The vaginal operation consists in making an incision with

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia.

knife or scissors through the posterior fornix of the vagina, tearing the broad ligament with the finger or blunt instrument until the inflammatory collection is reached, which is punctured with closed scissors and the blades separated as they are withdrawn, thus permitting the introduction of the finger. The cavity should be thoroughly irrigated with hot sterile water. Having cleared the cavity of pus and exudation, we proceed to the exploration of the opposite side of the pelvis. If the inflammatory trouble is confined to one side we may content ourselves with packing the cavity with sterile or preferably iodoform gauze. It is important that the vaginal incision shall be free, to prevent the retention of secretion and secure free drainage. Should it be evident that both tubes are so diseased as to render their sacrifice desirable, the uterus should also be removed, and the vaginal route affords a favorable avenue for the procedure.

When the operation is begun for the purpose of removing the uterus and appendages, the incision encircles the cervix, and from it an incision two centimetres in length on each side is made parallel to the posterior surface of the broad ligament. The tissues are pushed and dissected off anteriorly and posteriorly until the peritoneum is reached and opened. The dissection can be greatly expedited by the judicious management of proper retractors. As the uterus in these cases is more or less fixed, the application of forceps to the broad ligaments over the uterine arteries, and the amputation of the cervix, will promote the ease of anterior or posterior eversion of the uterus and expedite the operation.

With two fingers passed over or under the uterus, according to its eversion through the anterior or posterior fornix, the adhesions to tube and ovary or pus sac are separated and the masses turned down so that a pair of forceps can secure the remaining portion of the ligament. The tissues are cut, leaving a stump next the forceps to prevent their slipping. The uterus now hangs by the upper half of one ligament. The uterus can be pushed aside, affording more space for the enucleation of the remaining tube and ovary, the ligament of which must be treated similarly to the first. The removal of the uterus should be followed by careful inspection for bleeding vessels, thorough irrigation of the cavity with sterilized water or normal salt solution. Iodoform or sterile gauze should be carried over the internal ends of the forceps to protect the intestines from injury,

and additional gauze is packed between and around the instruments within the vagina.

The handles and external portions of the instruments should be wrapped with sterile cotton and gauze, which should be changed as frequently as it becomes soiled.

The forceps may be removed in inflammatory cases at the end of twenty-four hours. The upper piece of gauze may remain four or five days. After its removal the parts should go undisturbed for three or four hours, to permit the peritoneal surfaces to fall together and become agglutinated before resorting to irrigation. Subsequently irrigation should be practised twice or oftener daily for two weeks, or until the discharge ceases.

The early incision of the vagina and broad ligament in acute infiltration of the pelvis cannot be too highly commended. The drainage afforded through a gauze pack will in many cases enable us to anticipate the formation of pus and avoid the consequent destruction or crippling of important organs.

It has been objected to the vaginal method that it does not afford the same opportunity to investigate the condition and complete the operation under the eye as in the abdominal procedure. This objection is valid if we are contrasting it with the Trendelenburg position; but it should be remembered this position is not accepted by some prominent operators, and certainly but little is gained over the vaginal method in the short incision and dorsal position as advocated by Tait. Without doubt any inconvenience is more than compensated by the increased advantage.

The procedure has also been opposed for the reason that in some cases we will not be able to remove all the diseased tissue. This is equally true in broad ligament abscess by abdominal incision.

Fortunately it is unnecessary to always remove all the inflammatory tissue. If the pus pockets are opened, irrigated, and drained, Nature will take care of the remaining inflammatory products.

The advantages of the vaginal route may be enumerated as follows:

1. It permits us to explore, treat, and preserve organs which would otherwise be sacrificed.

2. It promotes drainage from the most dependent portion of

the pelvis, and enables the large peritoneum to be protected by plastic barriers.

3. It enables us to remove the uterus and appendages with less danger and much more subsequent comfort than if the abdominal incision had been practised.

4. The adhesions which Nature has provided to protect the vital organs are undisturbed, and consequently the patient is less likely to have subsequent obstructive symptoms.

5. The convalescence is shorter and the patient avoids such annoying sequelæ as abdominal sinus, painful cicatrix, weakened ventrum, and ventral hernia.

1715 WALNUT STREET.

A REPORT OF THE GYNECOLOGICAL SERVICE OF MOUNT
SINAI HOSPITAL, NEW YORK, FROM JANUARY 1st,
1883, TO DECEMBER 31st, 1894.¹

BY

PAUL F. MUNDÉ, M.D.,
Gynecologist to the Hospital.

(With forty-eight illustrations)

OVARIES AND TUBES AND MISCELLANEOUS.—It has been for many years a rule of mine that effusions of serum, blood, or pus in the pelvic cavity should be evacuated where the sac points and can be reached the most easily. Hence, in fluid accumulations pointing into the vagina, unless it was intended to remove the whole sac, as in the case of ovarian tumors, it was usually thought best to ascertain the nature of the fluid contents in the sac by aspiration through the vagina, and, if the diagnosis of fluid contents proved correct, to open the sac by this channel, evacuate and drain it. In short, I have always felt that it was a much safer plan to open and drain all pelvic accumulations of fluid which could be reached most easily through the vagina by that channel, rather than to open the abdominal cavity from above and take my chances of being able to enucleate and extirpate the whole sac or sew its edges into the abdominal wound. Comparatively speaking, the open-

¹ Concluded from page 681.

ing of an intraligamentous ovarian cyst or effusion of blood or pus, or even of a pyosalpinx or pus-ovary which has become firmly attached to the bottom of Douglas' pouch and is embedded in adhesions, is a very much less serious operation, which usually results in a gradual closure of the sac and a complete recovery, than to attempt to accomplish the same object by an intraperitoneal operation from above. For this reason I have opened and drained per vaginam three cases of cysts of the broad ligament, twenty-five of encapsulated pelvic hematocoele and of hematoma of the broad ligament, thirty-nine of true (extraperitoneal) or false (intraperitoneal) pelvic abscess, and two of intraligamentous ovarian cyst, with scarcely a fatal result. *It is an absolute condition for the feasibility of this method that the fluctuating sac should protrude into the vaginal canal and be easily reached from below; further, that, unless it is intraligamentous, a firm adhesion should exist between its walls and those of the bottom of Douglas' pouch, as may be the case in pyosalpinx or ovarian abscess.*

Hematoma of the Broad Ligament, as I have already stated, is probably in a majority of cases due to the rupture of a tubal pregnancy which happens to have taken place between the layers of the broad ligament instead of into the free peritoneal cavity. This diagnosis is, of course, more or less obscure, and can rarely be verified because both the fetus and the chorionic evidences are not always recognizable even under the microscope. Be this as it may, whatever the origin of the intraligamentous hemorrhage, when the effusion is large, has persisted for several weeks, and there is no evidence of its absorption, it is better to open the sac per vaginam, evacuate it (which can be done with the finger or with a large blunt curette in order to break down the old coagula), and then thoroughly clean it by irrigation. A rubber drainage tube should be then inserted and the vagina loosely packed with iodoform gauze. In the course of a few weeks under irrigation and drainage the cavity will contract, and in at least ninety-nine cases out of a hundred the convalescence will be uneventful.

I seldom operate on an intraligamentous ovarian cyst by vaginal puncture and drainage, but at times the general health of the patient does not admit of a protracted and difficult intra-abdominal operation; besides, in small intraligamentous ovarian cysts it is impossible to draw up the layers of the broad liga-

ment so as to be able to stitch them to the edges of the abdominal wound and thus shut off the general peritoneal cavity. The danger of rupture of the posterior layer of the broad ligament, and therefore the impossibility of thus shutting off the peritoneal cavity, is one of the great risks which we run in attempting to remove intraligamentous ovarian cysts by a median abdominal incision. In cases where, therefore, this risk seemed imminent, I have attempted to overcome it by opening the cyst *per vaginam*; and while I have seen one death from secondary rupture of a large vessel embedded in the wall of the cyst, I have succeeded in curing one case which I really believe would have died from septicemia or peritonitis if I had attempted to operate from above. It must be left to the judgment of the operator to select the method of operation in each individual case.

By true pelvic abscess I mean an accumulation of pus outside of the peritoneum—that is, within the pelvic cellular tissue. I have already said that it is impossible always to say whether such an abscess was originally extraperitoneal or not. It might have been a pyosalpinx, or an abscess of the ovary, or accumulation of pus in Douglas' pouch, but by adhesions of its surrounding parts, notably the intestines, it has become practically extraperitoneal. It points into the vagina; fluctuation can be felt there. It does not extend close to the anterior abdominal wall, although the brawny, hard mass may be felt by bimanual palpation; but evidently the nearest point of approach is through the vaginal roof. Hence, whether the abscess be originally extra- or intraperitoneal, when I am sure that it is securely fixed in the pelvic cavity, is not movable, and can best be reached through the vagina, I have always made it a rule to open it through this channel, first having satisfied myself of the presence of pus by careful aseptic aspiration. My method has been precisely the same as in cases of cysts of the broad ligament or pelvic hematoma—namely, to introduce a pair of sharp-pointed, long-bladed, straight scissors into the sac, open them as soon as they have penetrated into the cavity, and introduce between their blades a blunt two-branched dilator. The scissors are then withdrawn so as to avoid any accidental injury from their points, the dilator is opened widely, and the sac washed out with a hot Thiersch's solution. If the contents are very offensive a 1:10,000 bichloride solution is used instead.

A white rubber drainage tube, properly perforated, with a cross-piece to prevent its slipping out, is inserted and the vagina loosely packed with iodoform gauze. So far as I can recollect, only one of the thirty-nine cases of pelvic abscess thus treated died; all the rest recovered in the course of a few weeks under proper irrigation and drainage. Of course I do not intend to presume that such abscesses can be permanently cured by this method so long as the suppurating cavity is allowed to remain. If, therefore, the purulent discharge persists for several weeks, curetting of the cavity with injection of tincture of iodine or carbolic acid may be necessary. I think this necessity, however, will rarely occur. I have found sinuses resulting from these intrapelvic sacs which are opened per vaginam to be much less obstinate in closure than those which remained after the suprapubic opening of pelvic abscesses, probably on account of the better drainage through the vagina. I can remember but one case where, after a protracted drainage of an adherent pyosalpinx per vaginam, some years later the removal of the sac was called for by its persistent refilling and discharging.

Celiotomy—that is, the opening of the abdominal cavity through the median line—was performed three hundred and fifty-seven times. In one hundred and twenty-eight cases the indication was the removal of an ovarian tumor. I but repeat the universally accepted practice among gynecologists nowadays when I say that an ovarian tumor, whether solid, fluid, or composed of both elements, should be removed by abdominal, or if small vaginal, section as soon as it is detected. Even an ovarian cyst of the size of a hen's egg had better be removed in this manner, as it is sure to grow, rather than to allow the patients to take the chances of the various accidents which may occur to it before it produces decided deleterious symptoms. Every ovarian tumor from the very inception of its growth is liable to become adherent to neighboring organs, to undergo inflammatory changes in consequence of a twisting of its pedicle, and even to experience a rupture and escape of its contents into the general peritoneal cavity with the result of more or less acute peritonitis. The more extensive the adhesions, the more friable the walls and contents of the cyst, and the larger the tumor, *ceteris paribus*, unless its contents be entirely fluid, the more difficult and dangerous will probably be its removal, and any one or all of these results may be expected in the course of time in the

majority of ovarian tumors. The more fluid the contents of the cyst, the smaller the opening through which it can be removed and the more easy and less dangerous the operation. As is common in hospital practice, quite a number of these cases of ovarian cyst did not apply for admission until an operation could no longer be postponed; they were therefore not always in as good physical condition as could have been desired. Several



FIG. 36.—Polycystic tumor of right ovary, weighing forty-six pounds. Numerous adhesions. Recovery.

times, indeed, the operation was performed as a last resort, and, proving exceptionally difficult, the patients did not long survive it. In forty cases the right ovary alone was the seat of the tumor, in fifty-four cases it was the left ovary, and in thirty-four cases both ovaries had undergone degeneration. In thirteen cases the cyst was intraligamentous, one of the most unfavorable positions for operation; seven times cancer and

three times; papilloma of the ovary with general ascites were the indication for the operation, an explorative incision being the means of assuring the diagnosis.

Torsion of the Pedicle.—In twenty-three cases the pedicle of the cyst was found twisted, this twisting being the indication for a speedy operation. It is curious that the pedicle of an



FIG. 37.—Torsion of pedicle of cyst of right ovary. Cyst attached to left abdominal wall. Recovery. (Diagrammatic.)

ovarian cyst may be twisted even two or three times, so as to shut off almost completely the circulation of the cyst, and still there are no decided constitutional symptoms, but very slight temperature, some pain, it is true, and occasionally a chill; but most of these patients are up and about, and would not have been supposed, judging from their appearance, to be suffering from

an abdominal condition which might at any time cause their death—I mean that at any moment the black, semi-gangrenous ovarian cyst might rupture and general peritonitis ensue. Curious to say, in none of the cases which I have observed did this occur, and I presume this immunity can be explained by the fact that the walls of the ovarian cyst became agglutinated to neighboring organs and were thus more or less perfectly nourished. In some of the cases, indeed, nutrition through the pedicle was absolutely out of the question, since it was so tightly twisted as to entirely interfere with circulation; in one instance the pedicle was at least six inches long and as thin as a piece of twine and quite as bloodless. In these cases, of course, nutrition of the cyst took place through the adhesions. With one exception all these twenty-three cases recovered. In ten instances the right ovary was at fault, in thirteen the left. The direction of torsion was almost invariably from the affected side—that is, if it was a cyst of the right ovary the twist was toward the left; if of the left ovary, toward the right. Thus was accounted for the fact that the ovarian cyst in these cases was usually found on the side of the pelvic or abdominal cavity opposite to that from which it sprang. The causes of this twisting of the pedicle of ovarian cysts are not entirely clear, but it is probable that the normal peristaltic movements of the intestine, together with habitual or accidental changes in the position of the body, are instrumental in turning the axis of the pedicle upon itself. Only comparatively small ovarian cysts are for obvious reasons liable to this accident, and I have made up my mind that whenever an ovarian cyst not larger than a cocoanut or an adult head causes more or less acute pain with variable degrees of elevation of temperature, such symptoms are very probably due to a torsion of the pedicle and an inflammation of the cyst. The indication for early removal of cysts with such symptoms is therefore sufficiently apparent.

In the case represented in the illustration the cyst was situated high on the left side of the abdomen and was apparently not connected with the pelvic organs. Its true nature was uncertain, and the incision was therefore made directly over it instead of in the median line. Only on opening the peritoneal cavity did I recognize that it was an ovarian cyst which was completely attached by fresh adhesions to the parietal perito-

neum. Peeling the cyst loose, I evacuated its contents and drew it out of the incision. Its long, thin, entirely bloodless pedicle then appeared, and, before I could prevent it, broke a few inches from the right horn of the uterus, from which side it sprang. There was no bleeding whatever from it. The appendages on the other side were adherent and removed. Recovery uneventful. (Fig. 37.)

Dermoid Cysts of the Ovary occurred in twenty-five cases, ten being of the right, ten of the left ovary, and five of both

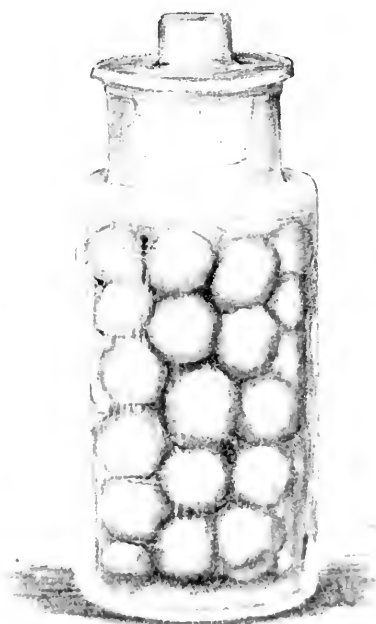


FIG. 38.—Balls of fat from dermoid cyst.

ovaries. The contents of dermoid cysts of the ovaries are well known to be hair more or less matted or developed, usually of a blonde color, teeth more or less well developed, and bone embedded in the walls of the sac, together with a peculiar pea-soup fluid. Whether these cysts are an embryonic formation produced by the accidental inclusion of the external blastodermic membrane with the formative elements of the Wolffian body and therefore of the ovary, or whether they are the result of a formative degeneration of the elements of the ovum, is a question still to be decided. They certainly contain tissues which

pertain to the embryo, and a natural supposition would be, and has for many years been, that they were the result of a blighted conception or a probable ovarian pregnancy. This, however, is now well known not to be the case, since they have been found in young children and in virgins of different ages, entirely irrespective of any approach of the other sex. These tumors are simply a freak of Nature and may occur in other portions of the body, but the ovary in the female and the coccygeal and

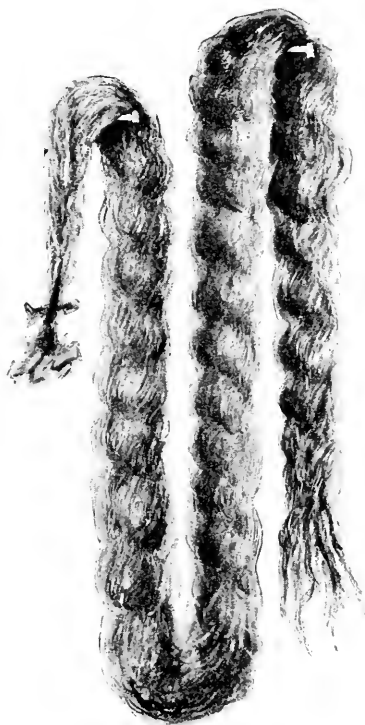


FIG. 39.—Switch of hair, five and a half feet long, from dermoid cyst.

thyroid regions in the male are the favorite spots of selection. According to my experience dermoid cysts of the ovary may remain dormant for a number of years, finally springing into activity at three chief periods of life: first, that of puberty; second, that of marriage; and, third, that of childbirth. Each of these different periods seems to exert a stimulating influence upon the growth of these tumors. One of their peculiar features is that at a very early period, when the tumor is not larger than an egg or an orange, it gives rise to pain and evidences of

inflammation which are not common in the ordinary ovarian cysts. When I therefore find small ovarian tumors causing pain and more or less rise of temperature, I am inclined, as I have already stated, to attribute these symptoms to a twisting of the pedicle, and, if the tumor has a solid feel, am frequently disposed to add to this the diagnosis of a dermoid tumor. Dermoid cysts are usually supposed to be unilateral, but I have seen in the hospital five cases of double dermoids and several more in private practice, in one of which there was even preg-

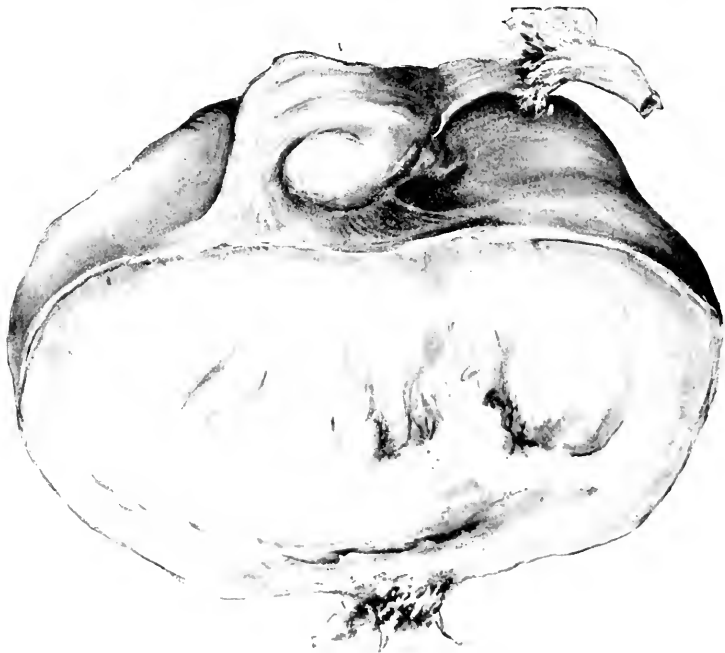


FIG. 40.—Solid tumor of ovary, weighing one and a half pounds. Recovery.

nancy in the fifth month, although the ovaries were so degenerated by the dermoid disease as to seem to be entirely incapable of the production of ova. In two instances I have witnessed very peculiar contents of dermoid cysts, the one being numerous small buttons of sebaceous matter, each containing a hair, and the other that of a development of hair which is almost unique in medical literature. The cyst was removed from a virgin 41 years of age, the other ovary containing hair, teeth, and bones, but in a much less marked degree. The tress of hair which is shown in the cut was closely matted together

and surrounded by a small amount of thick pea-soup fluid. On dissolving the sebaceous material in ether the hair became clean, and, after suspension, now measures nearly seven feet in length. All this mass of hair sprang from one small nipple inside of the cyst not more than an inch in diameter. I cannot determine whether all the strands of hair extend to the whole length of the switch, because they are so matted together that it is impossible to properly isolate it. It is of a dark blonde color and as perfect in formation as the hair of the female head, but perhaps a trifle finer.

I have seen but two *Solid Tumors of the Ovary* which I was able to remove (see Fig. 40). Several others which I diagnosed as such have come under my observation but did not submit to an operation. The one represented in the cut was from a young single lady from the South, in whom I was for some months in doubt as to whether the hard, movable mass in her abdomen was a pediculated fibroid of the uterus or a solid ovarian tumor. The pain finally induced me to decide upon an abdominal section, when I found that the mass was a solid tumor weighing a pound and a half and springing from the left ovary, the hilus of which was still visible at the base of the tumor. Finding the other ovary slightly cystic, I exsected the cystic portion and closed the wound with catgut and dropped it back. The patient made an uneventful recovery. Solid tumors of the ovary are so rare that Spencer Wells, I believe, records only two instances in over a thousand ovariectomies.

Of my one hundred and twenty-eight ovariectomies for cystic disease eleven died. I do not think that this rate of mortality (about 8.7 per cent) is too great under the circumstances, considering the various disadvantages which pertain to operating on such cases in a general hospital, to which I have already referred in my introductory remarks, and the desperate condition of some of the cases when admitted.

Of the seven cases of *Carcinoma and Sarcoma of the Ovary* I am sorry to say three died; but that can hardly be a matter for surprise, since the ultimate result was a foregone conclusion. Of the three cases of papilloma of the ovary also associated with ascites two recovered. It must be understood that papilloma is not a malignant disease in itself, becoming so only in course of time. It usually produces general ascites from the irritation of the rapid growth of the tumor on the neighboring

peritoneum, but if removed early and entirely it is quite as curable as any other ovarian tumor. When, however, the papillomatous growths have already encroached upon the parietal or visceral peritoneum separate from the ovarian tumor, and are therefore not removable with any degree of certainty, the prognosis as to the return of the growth, not in the original site but on the peritoneum, is not so good, and subsequent operations usually fail to effect a permanent cure. The patient who died succumbed to the drain upon her general health before the operation. In one instance I performed four abdominal sections on the same patient—two in 1887, both being exploratory, since

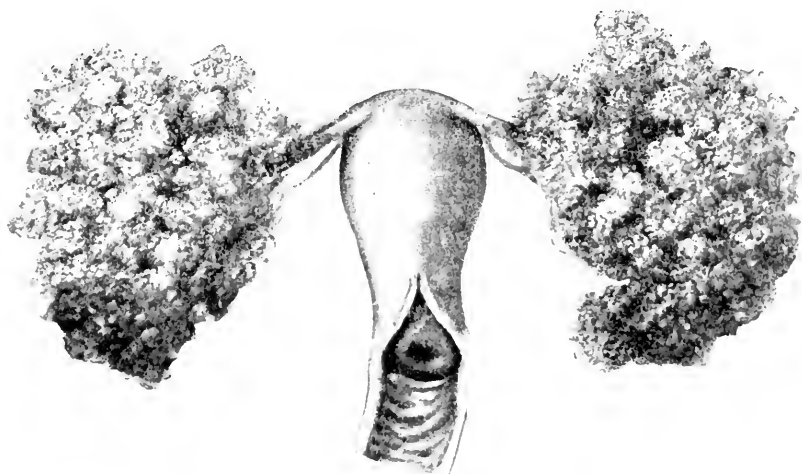


FIG. 41.—Papilloma of both appendages. Recovery.

it was found impossible to remove the growth, which involved both ovaries, the uterus, bladder, and rectum. For five years the patient remained in perfect health, and then the original papilloma, which had been quiescent all this time, broke down and formed a foreign body with firm walls of adhesion. A fistulous opening through the old incision enabled me to insert my finger into the sac and make the diagnosis. I removed all of the papilloma which I could with my fingers and packed the cavity with iodoform gauze. During convalescence a coil of intestine which had become closely adherent to the upper portion of the sac and near the upper angle of the wound opened and a fecal fistula was established, which healed in course of time after another operation. The patient has since drifted

out of sight. The difference in diagnosis between papilloma of the ovaries with ascites and carcinoma of the ovaries with ascites is that in papilloma there is comparatively little general cachexia, although physically the signs may be almost identical. Of course it is impossible to differentiate between these two conditions until the abdomen has been opened; and, indeed, it is often difficult to decide, without a microscopical examination, whether the peculiar cauliflower growth of the ovaries is malignant or papillomatous. If not removed thoroughly and at an early date, a papilloma, as already said, is sure to become eventually quite as malignant as if it were originally of the carcinomatous type.

Intraligamentous Ovarian Cysts—that is, those which develop between the layers of the broad ligament instead of growing away from the attachment of the ovary—are by far the most disagreeable, difficult, and dangerous pelvic tumors which I have found it my duty to operate upon. In the first place, the diagnosis is often exceedingly difficult. The pelvic cavity is occupied by a tense, more or less solid tumor which pushes the uterus upward and forward or to one side. The vaginal vault is more or less obliterated by the tumor growing down into the pelvic cavity, and the abdominal wall is more or less distended by the growth, according to its size. The uterus is immovable, and one gets the idea that the tumor is more or less closely connected with that organ. At the same time we have the general cachexia peculiar to ovarian cysts in the advanced stages. If the tumor is so large as to visibly distend the abdomen an abdominal section is indicated, since it can scarcely be thoroughly treated or removed by a vaginal opening. If the enveloping layers of the broad ligament are sufficiently thick to permit of their secure attachment to the abdominal incision, all is well; but if they are friable and easily broken down it is absolutely impossible to separate the cavity of the cyst from the general abdominal cavity, and we are then obliged to remove by enucleation as much of the sac of the tumor as we can, stitch such of the broad-ligament tissue into the wound as still remains unbroken, pack the pelvic cavity with iodoform gauze, partially close the abdominal wound, and trust that the reparative efforts of Nature will do the rest. Unfortunately sloughing of the brittle and torn portions of the broad ligament not infrequently results, and septicemia and general

peritonitis bring on a fatal termination. I am sorry to say that of the thirteen cases of intraligamentous cyst of the ovary which I find recorded in this report, five died from these very causes. Of the two others which were operated on by vaginal incision and drainage one died, making fifteen cases with six deaths. The percentage of recovery will thus be seen to be about equal for either method. Still, during 1894 I operated by celiotomy on a desperate case of suppurating ovarian cyst of the right broad ligament, which had not been diagnosed by the former physicians, by enucleating the whole pus sac, stitching the broad ligament into the wound, and packing it with iodoform gauze. In four weeks the woman was well. This case was certainly a triumph for the abdominal method.

A Cyst of the Broad Ligament was operated upon by me by abdominal section in seven cases. Such cysts indeed are not very common. They produce comparatively no symptoms, grow very slowly, seldom affect the general health of the patient, and come under observation only because their increasing size attracts attention. It is not always easy to differentiate between them and an ovarian cyst. As a rule, being situated between the layers of the broad ligament, a cyst of the parovarium grows more downward into the pelvic cavity, and only when it has attained considerable size becomes apparent through the abdominal walls. This prominence of growth into the pelvic cavity, its situation to one side of the uterus entirely—which organ it has pushed upward and to the other side—the immobility of the cyst, its evidently unilocular character, and finally the perfectly clear, limpid appearance of the fluid removed by aspiration, will usually serve to make the diagnosis of broad-ligament cyst perfectly clear. These cysts seldom attain a greater size than that of a uterus at six months of pregnancy. I have met with one case, however, in which the cyst contained thirty-eight pints of fluid. Being intraligamentous, these cysts have the disadvantage of possessing no pedicle, and in removing them through a median abdominal incision it is therefore necessary to first sew the broad ligament to the edges of the abdominal wound, then to open the cyst and enucleate its sac entirely from its bed in the pelvic cellular tissue. If this is not easily possible it is better not to insist upon it, but to pack the cavity with gauze, as should be done after complete enucleation of the cyst, and to trust to the gradual closing of the cavity by contraction

and granulation. This is usually a matter of some weeks' or

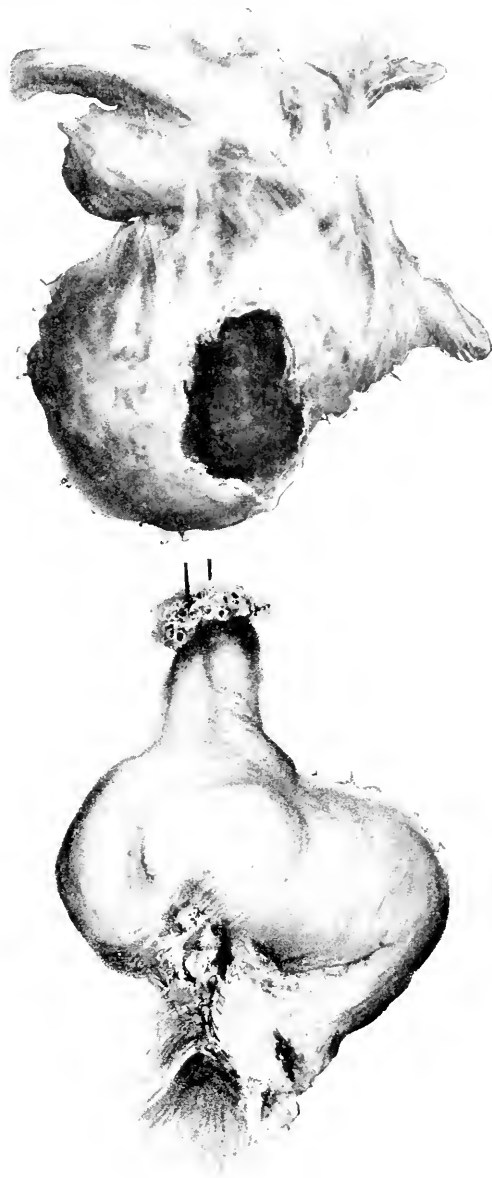


FIG. 42.—Double pyosalpinx; double ovarian abscess, with rupture on right side during removal. Recovery.

even months' duration, but such cases almost without excep-

tion terminate favorably. As I have already said, I prefer opening cysts of the broad ligament through the vagina, if they point pre-eminently in that direction, since the risk is much smaller and it is hardly worth while to expose patients to any great danger from removing these cysts, because they by no means have the deleterious effect upon the general health which is so distinctive of ovarian cysts.

Hematoma of the Ovaries was found three times on opening the abdomen, the exact diagnosis of this condition not having been made beforehand. The operation was performed solely



FIG. 43.—Ovarian abscess ; rupture during removal. Universal adhesions. Recovery.

for persistent pain in the ovarian region which had failed to yield to all treatment. Bimannally no evidence of a distention of the ovary could be felt, which was doubtless due to the fact that the sac in each instance was not fully distended, but was flaccid and could no more be felt through than could coils of small intestine. The sacs in each instance were about the size of a mandarin orange, completely adherent, but easily enucleable. Rupture took place each time, but recovery was uninterrupted, the pelvic cavity being thoroughly washed out with Thiersch's solution before closure. In one case I employed a glass drainage tube, but found it unnecessary in the later cases. All recovered.

Abscess of the Ovary, more or less connected with inflammatory disease of the tube, was operated on by celiotomy in sixteen cases, with fifteen recoveries. (See page 496.)

Celiotomy for Chronic Inflammation of the Ovaries and Tubes together was performed seventy-one times. It must be understood that in these cases of so-called chronic salpingo-oöphoritis the tube is usually the chief feature in the case, the inflammation having been transmitted from the endometrium to it and the pathological changes being confined usually to it. The ovary is only involved secondarily and may in many cases be practically perfectly healthy. Both ovary and tube are liable to become adherent to the bottom of Douglas' pouch and to be curled up by the contraction of these adhesions so as to be entirely immovable. The tube in the milder cases is simply affected by a catarrhal inflammation which produces no hypertrophy of the tube walls, but often closes the peritoneal end of the tube. The contents of such a catarrhal tube are not pus but mere thick, discolored mucus. In the older cases the frequent repetitions of inflammatory action in the tube gradually bring about hypertrophy of its walls until the tube may become as thick as the little or even the index finger. It is more or less curled upon itself, twisted and tortuous, with sacculations at various points due to the accumulation of muco-pus. Both the uterine and abdominal ends of the tube are usually closed by adhesions, chiefly the abdominal end. The ovary, as I have already remarked, may be entirely healthy, although it is bound down by adhesions and often covered by the infundibulum of the tube which is spread over and adherent to it. Conception in such cases is of course impossible, since even if the uterine end of the tube were open the spermatozoa could not escape from the abdominal end, even supposing that they succeed in passing the various constrictions on the way. Besides, the adhesions covering the ovary would interfere with the escape of the ova from the Graafian follicles. In operating on such patients we must therefore consider that practically they are sterile, and that therefore the removal of their diseased appendages does not in any way affect their prospects of maternity. They are no more sterile after the removal of the appendages so diseased than they were before. It is, however, usually impossible to determine by any physical examination, even by the most experienced hands, exactly what the pathological conditions of the

appendages are after a series of local inflammatory attacks. I have therefore, after a fairly large experience, numbering in all probability several thousand cases in both hospital and private practice, come to the conclusion that we are not justified in removing appendages which have undergone a certain amount of inflammatory action, even though they may be entirely useless for the purposes for which they were originally intended, unless the patient suffers so much pain from their diseased condition that she is practically rendered a bedridden invalid and prefers to undergo the risks of the removal of the diseased organs rather than to continue to suffer the discomforts which they cause. As I have already said, the question of mutilation or of removing organs which are necessary to possible maternity does not come under consideration in well-marked cases of this kind, since an occluded tube and an adherent ovary are sufficient causes for sterility. I do not expect or pretend to restore such appendages to their normal condition by any method of treatment; it is not, therefore, for this reason that I am conservative as regards advising their removal; I simply do not believe that organs, even if they are diseased, which produce no decided discomfort to their possessor, should be removed by an operation which will never be entirely devoid of danger, no matter who performs it. It is only when these organs become the source of decided and otherwise irremediable distress that I think we ought to remove them. Let it be well understood that I am not now speaking of accumulations of pus in the tubes or ovary, but merely of tubes more or less diseased by chronic inflammatory processes, which tubes, if allowed to remain, will, however, in all probability never expose their possessors to any serious danger. The foregoing statements will account for the fact that I have operated on comparatively so few cases of chronic salpingo-oöphoritis. I could have easily done ten times as many such operations had I believed that I was justified in doing so. I may have erred on the side of ultra-conservatism, but if I did the error could easily be corrected at some later date, whereas I have never known ovaries and tubes once removed to be capable of replacement. The operation is not necessarily a very serious one, since only one out of seventy-one died, slightly more than one per cent. While therefore nearly all the patients recovered from the operation, I cannot say that all were cured thereby, for in a certain proportion of the cases the pains of which the patients com-

plained before and for which the operation was done continued for a year or more afterward in very much the same intensity. Still, the large majority of the patients were eventually cured entirely, and I therefore do not regret having performed the operation. Occasionally if the adhesions were very dense an exudate would appear around the pedicle, which would persist for several weeks and retard convalescence accordingly.

In a certain proportion of cases, perhaps ten per cent, menstruation continued with more or less regularity for a year or longer after the removal of the diseased appendages, although I am sure their removal was complete. In one instance the ovary was divided into two parts, so as to appear like two ovaries.



FIG. 44.—Chronic interstitial salpingitis with hypertrophied walls (pachysalpingitis). (Diagrammatic.)

If by accident the pedicle ligature was so applied as to leave the portion of the ovary next to the uterus behind, the persistence of menstruation would be easily explained. This malformation is, however, very rare. The cause of the continuance of menstruation after removal of the appendages is not understood. I have noticed it only when the appendages were diseased and adherent.

It has been my practice in all celiotomies to make as small an incision as I could conveniently work through, probably scarcely ever longer than three inches. I have usually employed my fingers as the agents for detaching the adherent appendages, and only when intestinal adhesions were present or when the case

was one of exceptional difficulty, such as splitting of the broad ligament or severe hemorrhage, have I found it necessary to place the patient in Trendelenburg's position and expose the field of operation to the eye. As long ago as 1886 I became convinced that the indiscriminate use of drainage after abdominal section was a mistake, and that if the operator was clean and careful, avoiding not only the introduction of septic germs into the peritoneal cavity, but also particularly removing all the diseased tissue and checking all hemorrhage before closing the cavity, drainage was not only unnecessary but harmful. This applies particularly to the old form of drainage by glass tubes, which drained very little and irritated more than they did good. Whenever I have been obliged to drain in late years I have used either iodoform or sterilized gauze after the principle of Mikulicz, removing it within twenty-four or forty-eight hours, as the



FIG. 45.—Mundé's perforating forceps for abdomino-vaginal drainage.

case might be, and then usually closing the wound entirely. The use of such gauze drainage was limited almost entirely to cases where there was considerable parenchymatous oozing which was not checked completely when the abdominal wound was closed. In a few instances, particularly abscesses and intraligamentous ovarian tumors, I have perforated into the vagina and drawn a white rubber drainage tube or a thin strip of iodoform gauze through the abdominal incision, thus affording free downward drainage. I think I have saved some lives by this procedure. The instrument shown in the cut is one which I have devised for the purpose of perforating Douglas' pouch and the vaginal roof and drawing through a drainage tube for such cases.

In concluding this portion of my subject I will say that I confess that I consider it one of the most difficult questions to decide whether a given case of diseased ovaries and tubes warrants

the operation for their removal or not. There are so many different opinions on this subject, and so many undoubtedly perfectly honorable and straightforward men advise and practise this operation in cases where I cannot make up my mind to it, that I am afraid I will have to leave the indication for this operation to the individual judgment of each operator. I am aware that I have laid myself open to very decided and, I regret to say, from some quarters violent criticism for a plain expression of my opinion on this subject; but I feel that I have acted and am acting for what in my judgment is best for my patients. If other men think differently and act otherwise the responsibility

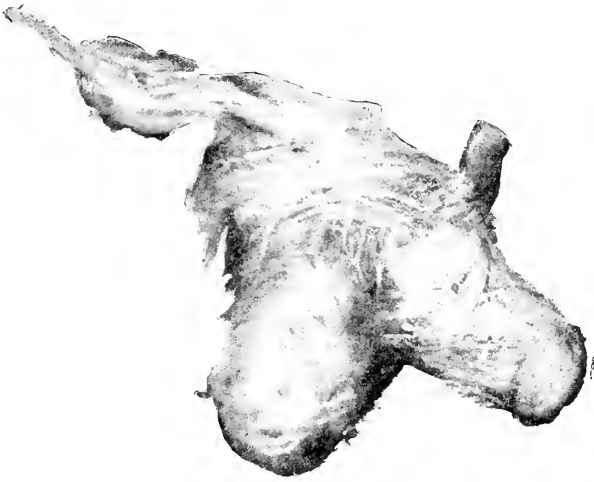


FIG. 46.—Left pyosalpinx adherent in Douglas' pouch. Ovary to right.

lies with them. Pyosalpinx, or a tube distended by pus, is quite a different thing from a tube simply diseased by chronic inflammation. A pus-sac, whether it be of the ovary or the tube, is always a source of imminent danger to the woman who carries it, for it may rupture internally at any time and produce a fatal peritonitis. The indication, therefore, for an operation in cases of pyosalpinx is always imperative. I often see reports of operations for "pyosalpinx" in which the amount of pus found in the tube amounted only to a few drops or a teaspoonful or so. These are recorded as instances of successful removal of a pyosalpinx. Such a tube, however, is not what I call a pus-tube or a pyosalpinx.

It seems that I operated on forty cases of true pyosalpinx, according to the record. Of these five died. By operation for pyosalpinx, however, I do not mean that in every case the abdomen was opened and the pus-tube enucleated and removed. Whenever the pus-tube was movable or but slightly adherent, so far as an examination could determine, or whenever the accumulation of pus was present on both sides (twenty-six cases), I have invariably opened the abdomen and removed the entire pus-sac together with the ovary. In a certain number of cases (fourteen), however, where the distended tube was firmly adherent, was present only on one side, and bulged deeply into the vagina so that it could be easily opened through that canal, I have so operated upon it, and have usually succeeded, after some months of drainage and irrigation, in bringing about a closure of the sac. This method is of course much less dangerous than that by abdominal section, although I will admit that it is also less certain of a permanent cure. As a rule, of course, if the whole of the sac of an abscess can be safely removed, such a course is by far preferable.

Hematosalpinx, or a distention of the tube by blood, I find recorded twice. It is now a well-known fact that an effusion of blood into the Fallopian tube is in ninety-nine out of a hundred cases due to the intramural rupture of an ectopic pregnancy, and still I suppose there are some cases of blood-tube where absolutely no history of pregnancy can be elicited. As we have apoplexy of the ovary, which forms the hematoma of which I have spoken, so we may have a rupture of a varicose vein into the tubal canal which may distend it with blood. So far as it was possible to ascertain, the two cases of hematosalpinx reported here had nothing to do with ectopic pregnancy; but of this fact I cannot be perfectly sure.

Ectopic Pregnancy is recorded sixteen times, six of the right and ten of the left side, with two deaths. In one of the fatal cases, I regret to say, I failed to operate, although I made the probable diagnosis by the history and bimanual palpation. The patient was in good condition but quite tympanitic, and I preferred to reduce the tympanites before opening the abdomen. Unfortunately a secondary hemorrhage came on during the night, and before help could reach her she died. The post-mortem showed the whole abdominal cavity up to the diaphragm permeated with dark clots, and a ruptured tubal pregnancy the

sac of which was adherent in Douglas' pouch. She could easily have been saved by an operation. In the other fifteen cases I made the diagnosis, at least presumably, in the majority, in several of them with absolute certainty, and verified it by the speedily performed operation. In a number the sac had ruptured previously and the effused blood was surrounded by adhesions, but in several others the sac was unruptured and burst only during its removal. One very desperate case was transferred to me from the medical service, where she had been for four or five weeks, having been admitted there with a doubtful diagnosis. The history as given me pointed distinctly, in my opinion, to a ruptured tubal pregnancy. The abdomen was much

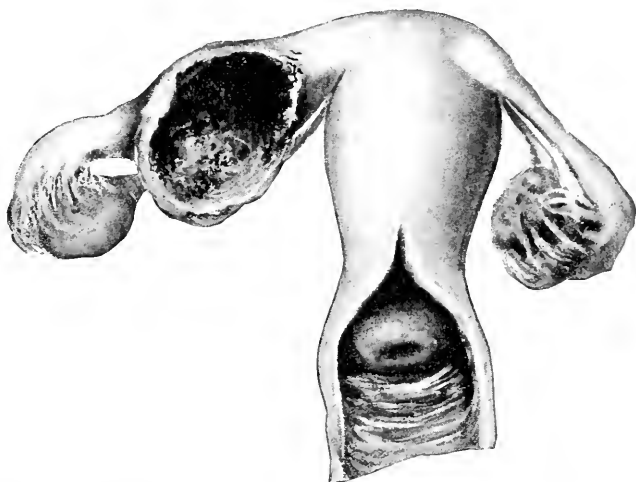


FIG. 47.—Tubal pregnancy on right side. Rupture during removal. Recovery. Fetus not found.

distended, complete dulness existed below the umbilicus throughout, and there was fairly distinct fluctuation. The patient's temperature was 104° , her pulse above 130 and poor, and her tongue furred and dry—evidently a septic condition. An aspiration made by the medical staff in the right iliac region had revealed putrid fluid blood. Half an hour after I saw her I opened the abdomen and was astounded at the gush of foul bloody fluid from the peritoneal cavity. It poured forth in a torrent, so much so that the spectators suggested that I must have opened an aneurism of the abdominal aorta. The intestines were universally glued together, and in the bottom of the pelvic cavity I found what proved to be a distended and adherent tube

which was split in the middle. Peeling this loose I found behind it the retroverted and adherent uterus. The adhesions were all fresh and easily detached. Tying off what I could of the rotten tube which was on the left side, I washed out the abdominal cavity with gallons of warm Thiersch's solution, packed Douglas' pouch loosely with iodoform gauze, and closed the rest of the wound. The patient's condition was then such that it was scarcely thought that she would survive the night. By dint of several hundred stimulating hypodermics (camphor and ether, strychnine and whiskey) she rallied, the temperature fell to about 100° , the pulse to 112, and there appeared some slight

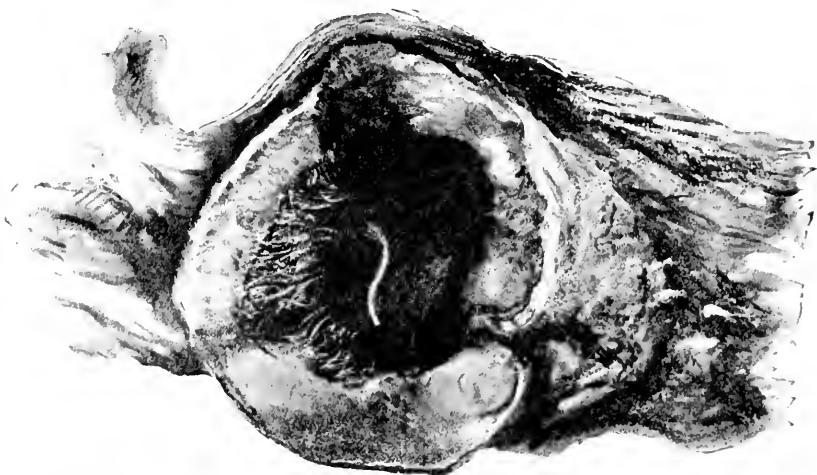


FIG. 48.—Tubal pregnancy on left side; previous repeated intramural hemorrhages. Ruptured just before removal. Recovery. Umbilical cord in centre; fetus not found.

hope for her recovery. Two days after that the temperature went up again, and, though there was no discharge from the wound, I removed the gauze, when at least a pint of very offensive fluid escaped from the abdominal wound. Seeing that drainage could not be effected in this way, I perforated the vaginal vault with the instrument seen in the cut and drew a large perforated rubber drainage tube through from the vagina. By this means the wound was kept fairly clean and in course of time granulated up completely and the patient made a good recovery. I think this was without exception the most desperate case of abdominal surgery which I have seen recover.

In one instance I was misled by the history of a case which was sent in as one of pregnancy of the right tube, and did not

find out my mistake until I had opened the peritoneal cavity. Then I discovered that the tube was normal and that the lateral tumor on the right side was due to irregular distention of the uterus. I thought I had an interstitial pregnancy before me. There being no doubt about gravidity, I drew the uterus out of the wound with volsella, intending to open the supposed ectopic sac, deliver the fetus, and sew that horn of the uterus into the abdominal wound. In order to facilitate the delivery of the uterus I inserted an aspirator needle and drew off some ounces of amniotic fluid. Before proceeding I directed an assistant to pass a sound into the uterus, in order to see where I should open the supposed distended right horn. To my surprise I found that the sound entered to the left side and only to the depth of three inches. On requesting him to reinsert it toward the right it passed up to the very end of the right horn to a distance of five inches, and at once the diagnosis was made plain—it was a case of pregnancy in the right horn of a double uterus. I closed the small wounds of the aspirator and volsella by catgut, returned the uterus into the abdomen, and closed the wound. The woman aborted the same night, but made an uneventful recovery. My experience with the diagnosis of ectopic pregnancy before operation very distinctly contradicts the assertion which Tait made some years ago, that this diagnosis can never be made until after the abdominal cavity is opened. I can prove by the records and by my assistants that with scarcely an exception I made the probable diagnosis with sufficient assurance to warrant me in sending out the invitation cards to the operation so printed.

Celiotomy for removal of the ovaries and tubes for other than decided disease of those organs—that is, for reflex hysterolepilepsy—was done by me in five instances. These cases are included in the seventy-one reported as for chronic salpingo-oöphoritis. It may be considered strange that, with the conservative views which I hold upon removal of the appendages, I should have allowed myself to be induced to remove clinically apparently normal appendages for the cure of epileptiform convulsions which were supposed to be due to the function of ovulation. I admit this criticism, but I can say in explanation that all of the cases had been under the observation of several prominent gynecologists and neurologists for several years, had been subjected to all kinds of constitutional and local treatment (massage, rest, electricity, and all the known nervines), without

any benefit whatever, and only after prolonged deliberation on my part did I consent to the operation. They were brought to me from different parts of the country, and, with the exception of the first one, were young unmarried women. I will admit that the indication is at best a dubious one, but the results proved that it was well taken. In all of the four unmarried cases the attacks were distinctly associated with the menstrual function and recurred in the intermenstrual period at frequent, irregular intervals. On removing the appendages the tubes were found normal, but the ovaries cirrhotic, shrunk, and even to the naked eye decidedly diseased. There was no enlargement of the ovaries, be it understood, but decidedly the reverse, the number of Graafian follicles being in each case markedly diminished and their size below the average. In one case the ovarian tissue was more like that of the kidney. All four of these girls recovered from the operation and from their neurotic symptoms. In one the attacks persisted for several months, but finally disappeared. Three of these young girls became trained nurses. I have often, in speaking of these cases, jokingly suggested the possible influence which removal of the appendages had upon the tendency of a woman to become a trained nurse. The fourth married a clergyman and I have since seen her in perfect health. The first case of the series was in a widow, and it was the only failure. I think myself that the indication was badly taken, since the derangement was more of a mental character, which finally developed into insanity and induced her to commit suicide some time after recovering from the operation.

Only in two instances did I *Remove the healthy appendages to arrest the growth of fibroid tumors*, both times with perfect success. Menstruation was at once checked, and a year later the tumor had in each instance shrunk to less than one-half its size when I operated. One was a married woman, the other a virgin. In the first case I operated for pain, in the second for metrorrhagia. The latter called on me a year afterward to introduce her husband! She was then in perfect health.

Abdominal section was twice performed for *Tubercular Peritonitis*, the diagnosis having been made with some probability beforehand. One patient died from the exhaustion of the disease, not so much from the operation. I have not been able to agree with those operators who have experienced such favorable results from this operation for this disease, since of the six cases

in all in which I have done it, five of whom recovered from the operation, the tubercular disease has evidently continued in the abdomen or made its appearance in the lungs and the patients lived but a comparatively short time. I suppose this has been merely my bad luck, and I shall therefore not fail to try again in a suitable case.

In three cases I opened the abdomen for *General Septic Peritonitis*, with which the patients were admitted; two of these died from exhaustion, the third recovered. What the cause of the peritonitis was I was unable to determine.

In three cases I opened the abdomen for *Intestinal Obstruction*. This accident does not really belong to my service, but, the cases having been admitted and the diagnosis made, there was no time to transfer them to the general surgical service. They were all desperate cases and two died soon after the operation. In the fourth, after the obstruction had been discovered and relieved, the enormously distended, almost black intestine was with difficulty returned into the abdominal cavity and the wound closed. Feeling sure that if this distention was not relieved the intestine would rupture, I ordered a large ox-gall and sulphate of magnesia high enema, and ten grains each of calomel and compound jalap powder, to be given as soon as the patient was returned to the ward. In a few hours an enormous evacuation of fluid fecal matter and gas took place, the intestines collapsed, and recovery, with the exception of some stitch-hole abscesses, was perfectly uneventful. This was a case in which the uterus and appendages had been removed for fibroid tumor some months before by a well-known operator, and the adhesions of the intestine were in the line of the cicatrix left from that operation.

In two instances I opened the abdominal cavity and *Shortened the Round Ligaments* for retroversion, after peeling loose the adherent uterus and appendages. The method which I followed was that recommended by Mann, which consists in doubling the ligaments once upon themselves and stitching them to the anterior uterine surface. The result in both cases was very satisfactory so far as retention of the uterus in the normal position is concerned. I never employ this intraperitoneal method of shortening the round ligaments except when the uterus and appendages are adherent, preferring by far Alexander's operation for the movable uterus and appendages, which I have

discussed in detail earlier in this paper. I think possibly the detachment of the adherent retroverted uterus and appendages, by means of an incision through the vaginal vault, may be effected with safety, and if so, after closing the vaginal wound, the round ligaments may be shortened by Alexander's operation. Thus a superior abdominal opening can be avoided.

Two rather rare instances of *Sarcoma of the Rectus Muscle*, both on the left side, came under observation, which necessitated the opening of the peritoneal cavity in order to permit the total extirpation of the malignant growth. The operations were exceedingly difficult and the wound made was very large. The incision was closed by interrupted sutures of catgut and silk-worm gut applied in stages, and both patients recovered from the operation. What the ultimate results were as regards recurrence I do not know.

In three cases I accidentally had the opportunity to open an *Appendiceal or Perityphlitic Abscess*; they were admitted with the diagnosis of pelvic peritonitis. One patient recovered without any difficulty, the second died of general peritonitis, and in the third the diagnosis was masked by a tumor which protruded the abdominal wall in the right iliac fossa, which I pronounced to be an ovarian tumor. The patient had some temperature and evidences of suppuration; I therefore supposed I had to deal with a twisted pedicle and suppuration of an ovarian cyst. On opening the abdomen I found that my diagnosis of ovarian cyst was correct, but on removing it it was discovered that the fever was due to a perityphlitic abscess which had burrowed down behind the peritoneum and had so far destroyed the posterior layer of the broad ligament as to cause it to rupture while the finger was exploring the pelvic cavity. The patient died of general septic peritonitis. My experience with perityphlitic abscess in the female has since been quite large, but mostly in private practice, the cases having come to my notice as pelvic peritonitis. I have seen several instances of the pus burrowing down retroperitoneally, discharging into the vagina, into the rectum, and once the abscess opened in the median line above the symphysis pubis. I also have seen several cases of appendicitis with suppuration during pregnancy, once producing an abortion and once a premature delivery of a dead child in the eighth month. With the exception of the abortion case all these cases recovered after I opened the abscess in the usual way.

I was obliged to perform abdominal section for two cases of deep-seated *Abdominal Fistula* remaining after removal of suppurating tubal sacs. It was necessary to exsect the walls of the fistulous track and then to drain into the vagina, closing the upper portion of the track with catgut sutures. These operations are exceedingly difficult and their results by no means as satisfactory as we could wish, since the fistula is very liable to remain open in spite of our efforts. There is often a silk ligature at the bottom of such fistulæ, and only a removal of the ligature will eventually result in a cure.

Exploratory Celiotomy was performed by me sixteen times for different conditions: partly for ascites from malignant disease of different abdominal organs, usually the liver or peritoneum, and not of a gynecological nature, partly for diagnosis of conditions elsewhere mentioned in this report.

Once I opened the abdomen for the purpose of removing a *Hematoma of the Left Broad Ligament*, but, finding that I could not easily stitch the wall of the sac to the anterior abdominal wall, I did not open the hematoma, but closed the incision and opened, evacuated, and drained the hematoma per vaginam, with the result of a speedy cure.

In two instances I opened the abdomen for a tumor situated to the left of and behind the uterus, which I took to be the inflamed and adherent ovary and tube; indeed, I thought it was a small semi-solid ovarian tumor. In the first case, on intending to peel it loose from what I took to be the adhesions, and having succeeded and drawing up the tumor through the abdominal wound, I found to my surprise that it was the kidney which I had cleanly peeled out of its capsule. Of course what I took to be the adhesions were the peritoneum lining Douglas' pouch and the capsule of the kidney. I was obliged to remove it, which I did by tying off the pedicle in the usual manner, dropping it back, and covering it over carefully with its capsule and the peritoneum. While for several days the woman's general condition was not very good, apparently due to shock, and the amount of urine went down as low as twelve ounces in the twenty-four hours, the other kidney soon took up the work, the urine gradually increased to its normal quantity, and the patient made a good recovery. In the second instance, several years later, the peculiar feel of the tumor in the left half of the pelvis reminded me of this first case, and on opening the ab-

dominal cavity and finding that the left ovary was normal, and that therefore the tumor could not be one of the appendages, I passed my hand into the left renal region and found the kidney missing. Although the right was in its normal position, I did not think it worth while to remove the displaced kidney, since it appeared to be healthy, and therefore closed the abdominal wound, and the woman promptly recovered. I think there are very few cases on record of such a complete downward displacement of the kidney as I have thus twice witnessed.

Only once has it been my duty to operate on a *Ventral Hernia*, which was left over after the removal of two ovarian tumors at different intervals by Professor Küster, of Berlin. The ventral hernia was caused not only by the diastasis of the recti muscles, but also by a tumor which distended the abdominal walls and which was situated apparently between the layers of the left broad ligament. I opened this tumor and found it to be apparently a colloid ovarian cyst. I stitched its walls to the abdominal wound, after excising the redundant skin, and evacuated its contents. How this woman happened to have a third apparently ovarian tumor I cannot explain. The letter which she brought me from Professor Küster distinctly stated that the tumors he had removed were ovarian, one from each side. It may be that a portion of one ovary was left behind in the ligature and developed downward between the layers of the left broad ligament. The patient recovered. This is one of the few cases on record, perhaps a unique one, of *three ovariectomies* being performed on the same patient.

Laparotomy (lateral incision).—In celiotomy, or median incision, the abdominal cavity is always opened. This is therefore a true abdominal section. In laparotomy, or the lateral incision, however, the general peritoneal cavity is not opened, or at least not intentionally so, and the operation is therefore a very much less serious and difficult one. It is usually performed for the opening of abscesses which have pointed upward toward the abdominal skin, and is essentially nothing more than the opening of an abscess in any other portion of the body. It is only when the peritoneal cavity is opened intentionally or accidentally through a lateral incision, as may be the case in an intraperitoneal abscess which points to one side or other of the median line and is fixed there by adhesions, or when a perityphlitic abscess is opened, that the dangers arising from entering the peritoneal

cavity are encountered. Such abscesses as point toward the abdominal skin may be either intra- or extraperitoneal, as I have already stated. It is not always easy to tell beforehand which will be the case. As a rule, however, whether primarily intraperitoneal or not, when they point upward they have become extraperitoneal through the formation of adhesions between intestines internally and the parietal peritoneum above, and there is therefore little danger in opening such an abscess. Of course the majority of patients in whom such abscesses form have already gone through a long, severe, and wearing illness from the pelvic peritonitis or cellulitis which is the cause of the suppuration. Hence some of them succumb eventually, but not to the laparotomy; they simply are not able to stand the prolonged suppuration and drain upon their general health which the protracted illness has entailed. For this reason nine out of ninety-five cases upon whom I performed laparotomy for pelvic abscess died. I usually precede the incision by verifying the presence of pus with the aspirator needle, and then cut down, under proper antiseptic precautions, until the pus is reached, opening the abscess cavity with a pair of blunt forceps, which are separated so as to allow a free escape of the pus. One or more drainage tubes of white rubber are then inserted, according to the direction of the abscess cavity, which is thoroughly irrigated with Thiersch's solution and loosely packed with iodoform gauze. It is well to remember that at times, even in cases which seem perfectly safe, the peritoneal cavity may be opened during these manipulations, and it is therefore well to avoid any unnecessary examination or breaking-up of adhesions. If this does occur the cavity must be sealed off as well as possible with iodoform-gauze packing, which should be left in four or five days at least until fresh adhesions have taken place. This has occurred to me several times, but I do not recall any unfortunate results from the accident. At times it has been found necessary by other operators to first open the abdominal cavity in the median line, and then with the fingers ascertain the location of the abscess before they could determine where the incision for its evacuation should be made. This is likely to be the case chiefly in very deep-seated, obscure pus-sacs which point neither upward nor downward, but in which the symptoms show that suppuration is taking place somewhere. The one great trouble with these pelvic abscesses is that deep and tortuous sinuses are liable to

remain, which often resist the most thorough curetting, packing, and stimulating processes for months, even necessitating a secondary operation, already referred to under celiotomy, for their closure. I have been able to do best with some of these cases by perforating through into the vagina and drawing a drainage tube through the whole sinus, which was gradually drawn downward in order to give the upper portion of the canal a chance to close. I am sorry to say, however, that there is still very much to be learned as regards not only the prevention but also the cure of such sinuses remaining after pelvic abscesses. To say that the sinus is always the result of unclean surgery—that is, of an imperfect removal of a pus sac, for instance—is absurd, since it is impossible to remove the suppurating membrane from a pelvic abscess. In my opinion the sinuses are due to the want of vitality of the contracting walls of the abscess, which resist all efforts at stimulation and throw out nothing but unhealthy, flabby granulations which show no tendency to union and closure of the canal.

My treatment of pelvic hemocele and pelvic hematoma has been so fully given in the first part of this report that I need but refer to page 505. I will merely add that I have not as yet seen a case where I thought it necessary to evacuate the effused blood through an incision in the ilio-inguinal region instead of through the vaginal vault. I can readily imagine, however, that such a necessity might occur if the blood tumor was decidedly more prominent in the groin than in the vaginal vault. To insure thorough drainage in such cases it might be well to make a counter-opening into the vagina and run a rubber drainage tube through from the abdominal incision.

I will mention here what I omitted to say in the first part of this report: that in very large, hard exudates, both intra- and extraperitoneal, I have at times seen the absorbent effect of blisters and hot poultices increased by the internal administration of small doses of bichloride of mercury, with or without iodide of potash. If there was absolutely no rise of temperature I have often given iron with the iodide, in the form of the syrup of the iodide of iron, one-half to one teaspoonful three times daily, well diluted. In fact I have found iron, combined with some other tonic, such as quinine and strychnine, beneficial in promoting absorption of large exudates by the improvement of the general health when the febrile stage had passed. But I

have never seen the least effect from such internal medication when the exudate had shrunk and become ligamentous. Old chronic cases of perisalpingo-oöphoritis are therefore, in my opinion, beyond the reach of constitutional remedies.

Diseases of the Female Breast have not been included to any extent in my service. The few cases which are recorded, five of amputation of the breast for *carcinoma*, occurred in private patients whom I had admitted to the hospital as such. In many books diseases of the female breast are classed among gynecological affections, but it is not customary in our general hospital so to admit them.

I have removed only one coccyx, and that for caries, in the hospital; one other in my private hospital for dislocation and coccygodynia. I am not very much in favor of mere pain in the coccyx as an indication for its removal, since I believe that it is mostly of a neuralgic character, and if the coccyx is removed the pain simply shifts somewhere else. However, I do not pretend to give a positive opinion on this subject.

There are a few other operations for general diseases which will be found in the list, which it is not my intention to specify.

TABLE III.

DEATHS FROM ALL CAUSES.

PERINEUM	Laceration (septicemia after operation)	1
RECTUM	Carcinoma	1
	Fistula (recto-vaginal)	1
BLADDER	Epithelioma	1
	Cystitis (pyelo-nephritis)	1
	Fistula (vesico-uterine; rupture of ovarian abscess; peritonitis)	1
UTERUS	Abortion (septicemia)	4
	Carcinoma	5
	Fibroid (after operation)	4
	Pregnancy (extrauterine, 2; 1 of secondary hemorrhage before operation)	4
	Prolapsus (after hysterorrhaphy)	1
	Polypus (hemorrhage)	1
	Placenta previa (exhaustion)	1
	Sarcoma	3
TUBES	Salpingitis	1
	Hydrosalpinx	1
	Pyosalpinx	5

TABLE III.—*Continued.*
DEATHS FROM ALL CAUSES.

OVARIES.....	Abscess.....	} after celiotomy.	1
	Cyst.....		11
	Carcinoma.....		2
	Papilloma.....		1
	Sarcoma.....		1
PELVIC PERITONEUM AND CELLULAR TISSUE.....	Abscess.....	} after operation.	9
	Hematocele.....		3
	Hematoma.....		2
	Peritonitis.....		7
	Sarcoma.....		1
ABDOMEN.....	General carcinosis of abdominal organs.....		6
	Sarcoma of pelvic organs..		1
	Carcinoma of colon.....		1
	Peritonitis, general (secondary or septic).....		12
	“ tubercular.....		1
	Obstruction of intestines.....		2
	Perityphilitis.....		2
	Pyemia.....		1
			102

TABLE IV.

TOTAL NUMBER OF PATIENTS, DEATHS FROM ALL CAUSES, AND OPERATIONS
IN EACH YEAR.

Year.	Patients.	Deaths.	Operations.
1883	181	3	47
1884	248	4	59
1885	257	6	84
1886	311	12	90
1887	239	9	107
1888	236	8	111
1889	280	6	121
1890	353	9	173
1891	345	10	184
1892	360	10	238
1893	447	10	258
1894	505	15	295
	3,898	102	1,767

IS SO-CALLED CONSERVATISM IN GYNECOLOGY CONDUCTIVE
OF THE BEST RESULTS TO THE PATIENT ?¹

BY

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It is the universal custom aboard ship to take and correct the vessel's position daily at a certain hour, and doing this does not in any way interfere with her progress. Let us suppose that on a given ship a party of men whose occupation was navigating, but who were simply passengers on this particular vessel, got together and openly expressed their opinion that the course was wrong, the position incorrect, and that danger was ahead for the numerous lives on board; we can easily imagine that the ship's officers, without perhaps admitting that they paid any attention to unofficial interference, would carefully review their *status in quo*, and, being satisfied that their course was unassailable, would let the ship proceed, knowing full well that they had taken into account all that should be considered to bring the voyage to a successful termination, and that the information at their command was to them more valuable and trustworthy than all the "accumulated vaporings of irresponsible frivolity."

It seems to me that without delaying unduly the progress of this Association—which I will compare to the ship—through the sea of science, and without running the risk of causing any of the more strictly scientific papers with which she is loaded down to be jettisoned, I may make use of the few minutes at my disposal to inquire whether the loud and at present somewhat fashionable utterances that we are running on rocks, or, in other words, that we are displaying recklessness in dealing with the lives committed to our care and over-operating in gynecology, have any foundation in fact, or whether the course we are pursuing is not absolutely correct.

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

"Over-operating in Gynecology" formed the subject of the address in the department of gynecology and obstetrics at the recent meeting of the British Medical Association in London.

From the stand taken* by a number of the medical profession one is almost inclined to ask whether it is of any benefit to the world that there should be gynecologists. Their remarks and assertions, for which they do not produce the least particle of proof, would imply that gynecology is a sort of illegitimate appendage of medicine, which should be choked and strangled out of existence as a monster which has suddenly arisen to unsex and destroy lovely woman, whereas in truth the science which deals with the diseases of women is one of the higher branches of surgery.

I will grant at once that in any case in which any of these gentlemen who are raising this cry are consulted they have a right to express themselves as to the necessity or otherwise for operation, but they have no right to condemn wholesale and generalize without official information, nor must they expect that for all time they will be allowed to do all the talking.

It is surprising that that branch of surgery which has made the greatest strides in the latter part of this century is the one which has had to endure the hardest knocks and the greatest opposition from the exponents of what I venture to submit is miscalled "conservative surgery."

I very much question whether "conservative" should ever have been placed in front of the word "surgery," for, unless it is intended to convey a meaning of contempt for the practice of to-day, its use is tautological; for the true surgeon has always been as conservative as the state of knowledge in his time has permitted him to be, and has as zealously opposed the sacrifice of the most minute portion of skin or the smallest drop of blood which could be saved, with due regard to the interests of his patient, as did Portia when she laid down the law to one Shylock who was about to insist on the enforcement of his bond for one pound of Christian flesh.

Now, we are told that a love of glory, the glamour of a successful operation, even the big fee which these gentlemen who rejoice in the name of "conservatives" seem to imagine accompanies or follows every case, tempts the gynecologist to ruthlessly unsex, wound, and even kill the poor suffering women who fly to them for succor, after having in all probability spent their

all with those who are declaiming against us and our branch of practice.

These men are of the same race who so bitterly opposed the operation for removal of ovarian tumor when first it began to be practised with anything like success—a condition for which they were then, and are now, powerless to suggest any other plan of treatment that did not consign the sufferer to a miserable and certain death.

The principles of surgery somewhat resemble justice: you cannot have one system of justice for a person of a white skin and a totally different system for a person of a darker hue; in the same way your principles of surgery can hardly insist on early incision of the finger where a felon is suspected, and deny early incision to a collection of pus within, or liable to find its way into, the peritoneum.

If surgical principles are so elastic and make such a glaring discrimination between different parts of the body, then I very much fear that our boasted science is not science.

The charge brought against us of seeking to short-cut our way to fame is very wide of the mark, because the moment the people find out that a surgeon is what they are pleased to call “fond of the knife,” his usefulness is likely to be seriously impaired. I know this to be true, most assuredly, of men located in the smaller communities, and from remarks overheard concerning men doing surgical work in the largest centres I believe it to be equally applicable to them. If there are men in the profession—I do not say there are—who prostitute their opinion for the sake of notoriety or more material gain, is it not at least probable that they are to be found among the ranks of those who continually put themselves on record as opposed to the teachings of the newer pathology, and that some among these are trying to short-circuit fame by adopting what is becoming a fashionable craze (in effect), to preach that it is better for one hundred suffering women to die unrelieved than that one should be relieved at the expense of organs which are not only useless but a source of danger?

I have little fault to find with the following sentence, which I quote from the address before alluded to: “Certainly, experience has taught much hitherto unsuspected as to what may be accomplished by skilful procedure and scrupulous antiseptic precautions, but the enthusiasm aroused may readily be carried too

far. I have lived long enough to see the evils of rushing on too impetuously, and in watching the progress of gynecology during long periods of time have witnessed the wax and wane of many enthusiasms which have had their day, and have had a share in bringing something like discredit on a department of practice which, rightly exercised, is productive of great good, but exercised unwisely is capable of producing infinite harm."

I think no one will venture to dispute the truth of that statement, but it has a very much wider application than its author perhaps intended. Any department of medicine rightly exercised is productive of great good, but exercised unwisely is capable of producing infinite harm.

There are also many who, without being able to boast of an extended experience covering half a century, can say truthfully that they "have witnessed the wax and wane of many enthusiasms" in other branches of medicine besides the gynecological—as witness the inflation of the rectum with sulphuretted hydrogen, the injection of tuberculin for tuberculosis, and the much-vaunted coal-tar products, of which it was at one time prophesied by "enthusiasts" that they would revolutionize the treatment of fevers, etc.

Were we anxious to retaliate for the many hard knocks dealt to us as gynecologists, we should not have very hard work to prove that as many had fallen victims to new drugs and new-fashioned theories in medicine without any pathological facts to support them as can be laid to the charge of the surgeon or gynecologist; while if we were to take into account the sins of omission of our ultra-conservative friends and attempt to count those whose lives were sacrificed to prejudice and might have been saved by more radical treatment in the hands of a surgeon, we should have such a heavy balance in our favor that some of our ultra-conservative critics would in all probability look about for some other materials from which to construct their papers for a considerable time to come.

Were it not for the "enthusiasts" medicine and surgery would not have made the rapid strides with which they are rightly credited. That some have allowed themselves to be carried too far is no doubt true, but it is only just and fair to give them credit for the best intentions; they acted in accordance with their lights, and were groping in the dark to discover means for the relief of suffering humanity.

It is right that enthusiasm should encounter mild criticism to keep it within bounds, but when pathology points the way to effect a cure, or as near a cure as our limited knowledge permits it to do, those who in a hasty or obstinate manner refuse to accept its teachings, and neglect no opportunity of expressing their disbelief in the necessity for operation for the relief of dangerous conditions, such as pns tubes, etc., surely place themselves somewhat in the position of the serpent when he tempted the first woman with the assurance, "Ye shall not surely die."

The writer of the address to which I have alluded speaks of "an ardor for stitching up rents in the cervix uteri following childbirth, rents which were described as producing many hitherto evils and frequently conducing to the establishment of malignant disease. One votary of this practice boasted of having detected and operated on, in a short period, no fewer than three hundred or four hundred cases which he found in examining nine hundred women. Surely here was a marked illustration of the *nimia diligentia*." I venture to ask whether this is a fair way of putting the case. We all know of a celebrated lithotomist and of the large number of lithotomies with which he is credited; would any dare to suggest that he has been over-operating? The reason he does so much work in this line is, clearly, because he has obtained so much proficiency in his specialty that his light can no longer be hidden under a bushel, and patients flock to him.

This argument might be extended to several others in many branches of practice, against none of whom has the charge of over-operating even been hinted; and I ask whether it should not be held in the case of the gynecologist referred to in my quotation, in a similar way, that he is a man possessed of skill and a large clientèle, certainly until the contrary is proved, rather than he should be branded as a man who is operating needlessly and thus be held up as the type of what constitutes the gynecologist?

Lest some suppose that I am attaching too much importance to the views of one man, I wish to quote from an editorial in the *British Medical Journal* of a week later than that which published the address which so far has formed the subject of my text. After bestowing a few complimentary remarks on the address the article goes on to say: "Unfortunately, several European authorities of high repute continually advocate extreme

courses, such as total extirpation of the uterus with the appendages in cases of chronic, or even acute, inflammatory affections of the tube and ovary. Last June the German Gynecological Association met at Vienna. A leading authority laid down the law that in gonorrheal disease of the appendages it is absolutely wrong to leave the tube and ovary on one side, even if they seem healthy, and that it is much better to remove the uterus as well. Another authority supported him on the score that many 'parenchymatous bleeding areas' are to be found in the uterus in these cases, so he always removes that organ. He does the same, he adds, in cases of malignant ovarian tumor—a clinical and pathological condition quite different from gonorrheal inflammation. Veit, of Berlin, spoke in a vein of satire. The advocates of amputation of the uterus insist that when the appendages alone are removed, exudations on the two pedicles set up pain and cause adhesions to the intestine or else fix the uterus. Veit attributes the exudations to fresh gonorrheal infection; therefore, says he, 'castration of the husband is the best thing for the patient.' Unfortunately, in France as well as in Germany, hysterectomy is extensively carried out. It is difficult to conceive anything more unsurgical than extirpation of the internal female organs for damage done by gonorrhea."

I think it will be conceded that there is a large proportion of cases in which, in the interest of the patient's future well-being, it is advisable when removing the ovaries and tubes to remove the uterus also.

The modern method of excision of the breast demands the complete removal of the axillary glands, the fascia, and the skin beyond any suspicious line of infection; and is it not probable that in removing the adnexa for malignant disease it is wise also to extirpate the uterus, which would otherwise, at best, be but a useless organ, especially when we consider that its removal adds little if any to the danger of the operation? Is it not easy to understand also that there must be a certain number of cases in which the uterus is found to be so diseased (when the abdomen has in the first instance been opened for the extirpation of diseased appendages) as to make it advisable, in the interest of the patient, to sacrifice that also?

Although a great many contend that it should invariably be removed at the same time as the ovaries and tubes, because

without them it is a useless organ, I think it is not in accord with correct principles to remove an unoffending organ simply because it is useless. Yet, according to the *British Medical Journal*, this course has the advocacy of many authorities of high repute, and therefore it should not receive wholesale condemnation until it is proved beyond the shadow of doubt that gynecological authorities are either less educated or more reckless, or both, than their brethren in the other branches.

The sentence, however, that I find hardest to reconcile with pathological fact is that containing the startling statement that "it is difficult to conceive anything more unsurgical than extirpation of the internal female organs for damage done by gonorrhea."

When so flat-footed a statement as this is made it appears to me that we are entitled to ask the writer—whose views must at least coincide with those of the editorial staff, otherwise the article would not have been admitted as a "leader"—whether he knows anything about the damage to the internal female organs caused by gonorrhea, and, if so, what treatment short of ablation is in the majority of cases of the slightest avail?

This is a fair sample of so-called "conservative" literature. Those who have had to deal with internal female organs damaged by gonorrhea know that delay here, in the largest proportion of cases, means death and a harvest for the undertaker.

If the writer is aware of any plan of dealing with this terrible condition which will at the same time preserve to the patient her organs and her life, he should not lose time in publishing the fact, that his confrères will no longer be under the necessity of indulging in the unsurgical (?) course which he finds it so hard to understand.

I do not wish to be understood as advocating the needless mutilation of the human or other animal, but when diseased organs threaten life or place the patient in such a position that life becomes a burden, or prevent the performance of the necessary duties, I can imagine no higher privilege than that of the surgeon to remove the offending members and restore his patient to a condition of safety or usefulness.

While in the greatest number of instances the best rule for guidance undoubtedly is that the least sacrifice of parts is an exhibition of the best surgery, in malignant disease, on the other hand, it is better to "cut wide of the mark."

The removal of ovaries and tubes simply for pain, when they

do not present pathological conditions, has for some time been condemned by gynecologists, and there is no more occasion for members of the general body of the profession to keep harping on that string than there is for the gynecologist to keep on reminding the ophthalmic surgeon that the eye is a valuable organ and should not be wantonly condemned simply because it is unsightly or sightless and no source of danger to the other eye. I imagine it would be found, if an exhaustive inquiry were made into the matter, that the neurotic cases, those in which the patient "carries her sexual apparatus on her brain," do not remain in the hands of the gynecologist after it becomes apparent that the sexual organs are not the seat of disease, but are handed over, as they should be, to the neurologist.

Having indulged in this long introduction, let me briefly inquire what so-called conservatism does for the female from an early period of her existence. In the first place, while it raises its voice loudly against operative measures having cure for their object, it appears to take no stock in prevention, and has done nothing to lift the veil of ignorance, mock-modesty, or whatever you choose to call it, which covers the whole subject of the physiology of the sexual apparatus.

It almost necessarily follows that the young, about the time of puberty (if their minds have not already received the "evil communication" which, we are told, "corrupts good manners"), get anything but strictly trustworthy physiological facts about their functions from those who neither in knowledge nor years are fit or capable to impart information which, properly given, would be useful and in a great many instances really preventive.

Does the young expectant mother, as a rule, receive from the medical practitioner the information that would be so useful to her during the time of her pregnancy?

Is it not a fact that too often she is left to obtain information, which may or may not be trustworthy, from more or less ignorant females whose only qualification, as a rule, is that "they have been through the mill"?

How often does it happen, in spite of all that has been written as to the importance of repairing damage to the perineum immediately after the completion of delivery, that any attention is given to that body, on the integrity of which a woman's comfort and future well-being so largely depend?

Or if it is stitched, how much value can be attached to the manner in which it is done in too many cases—for is it not a fact that too often the woman gets up with only a skin perineum, one existing in name only, and anatomically not of the slightest practical value to her?

Then, some few months or weeks after, when she complains of more or less backache, bearing-down pain, pelvic distress, or purulent discharge, how often is she submitted to strictly scientific treatment?

Is it not of such frequency that it may almost be stated as the rule that she is given some supposed tonic and vaginal wash, and that without adequate directions as to use, and assured that as she gets stronger she will lose her symptoms?

And the last state of that woman becoming worse than the first, she eventually does what she should have done long ago and falls into the hands of a gynecologist, who restores her to society a useful member. The great reward bestowed on the gynecologist is the charge of having operated needlessly.

While it has not been proved with mathematical accuracy that laceration of the cervix is the cause of cancer, is it not a fact that in the greater number of cases of cancer the cervix is found lacerated, and may not the unhealthy tissue thereby induced be more prone to take on malignant degeneration?

Or granting, for the sake of argument, that there is no relationship between laceration and cancer, is there any valid reason why an injury of the cervix should not be repaired by suturing in precisely the same manner that the general surgeon would adopt in a wound of the lip, or forearm, or any other part of the body? Why attempt to get primary union in one part of the body and teach that it is wrong in another? What would be thought of the surgeon who took so little pains in approximating the edges of a wound in a woman's face that an ugly scar was the result? Beyond the fact of the annoyance caused by the unsightly scar in this situation, the cicatricial tissue would not in all probability cause or set up any suffering, and yet fault is found with us for trying to prevent a mass of scar tissue in the cervix where it undoubtedly is often productive of a neurosis.

In commencing malignancy of the uterus does not so-called conservatism in delaying operation or in only removing a small

and insignificant portion of the cervix condemn the patient to an almost certain recurrence and death?

True conservatism recommends the removal of the whole organ early, with but little risk to life and at the expense of a body whose functions are already lost in consequence of the disease.

So long as we hold fast to surgical principles and apply them to our gynecological patients, I think we can make sure of keeping on the right track, and instead of being put on the defensive we are entitled to ask of all our critics and of all cavillers—and we shall require something more than mere assertions from them—Is so-called conservatism in gynecology conducive of the best results to the patient?

A CASE OF ACQUIRED ATRESIA OF THE VAGINA.¹

BY

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WHILE atresia of the vagina is by no means an uncommon condition, I feel that there is sufficient interest attached to the following case to bear recording. The origin of the atresia in this case is one that we are not likely to meet with often.

M. C., aged 35 years, the mother of four children, came under my care at the Philadelphia Hospital last May. Her last child was born August 12th, 1894, and the labor was a normal one. The perineum was lacerated. She was attended by two medical students, who repaired the perineum at once. The stitches were introduced one and a half inches in the vagina, uniting the anterior and posterior walls, thus causing the atresia. She remained in bed two weeks. In February, 1895, the child died, since the birth of which, up to the time of her admission to the hospital, she had not menstruated. Before the child's death she had suffered no inconvenience, but soon after she noticed that about every fourth week she had paroxysms of pain in the lower part of her abdomen, becoming worse each successive month, and

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia.

being of a sharp, cutting character. These pains were always accompanied with nausea and vomiting. In the latter part of April she noticed the presence of a tumor in the lower part of the abdomen, which was very tender to the touch. It was difficult to secure any movement of the bowels, and when they were moved it was always accompanied with intense pain. An examination revealed a slight median perineal tear, and the vagina was closed one and a half inches from the vulva. A cicatricial band was seen across the vagina, and there was a slight area of ulceration. Rectal examination revealed the pelvis filled with a dense fluctuating mass about the size of a cocoanut, and bimanual examination showed on the left side an oblong tumor, about as large as a good-sized cucumber, filling the left iliac region. On the right the pelvis was entirely filled with the large mass detected by the examination per rectum. The diagnosis of hematocolpos and hematometra was made, and a supposed hematosalpinx. On May 22d, 1895, an exploratory incision was made for the hematosalpinx on the left side, which proved to be a distended uterus pushed over by the hematocolpos and filled with blood. An opening was made in the vagina with blunt-pointed scissors, and there escaped about one and a half quarts of a thick, grumous, brownish-black blood, being retained menstrual secretions, from the vagina and uterus. The cavities were thoroughly irrigated with bichloride solution and packed with iodoform gauze, the vagina being packed daily and douched with sterile water. Convalescence was uneventful, with the exception of a papular eruption on the thighs and legs, which rapidly disappeared when sterile gauze was used in the place of iodoform.

It has been a question in my mind as to whether it was wise or not to have subjected my patient to the additional dangers attendant upon an exploratory incision; but thinking, as I did, that I had to deal with a hematosalpinx, I felt that it was wise to adopt the procedure which I did. I had in mind at the time a case which I had seen where hematosalpinx existed with hematometra and the uterus was emptied through the vagina. Shortly after this operation a leakage from the tubes caused a peritonitis which resulted in the woman's death. Had a hematosalpinx existed in my case I might have had a similar experience, and, as an exploratory incision is of minor importance as regards the danger of death, I feel that I was warranted in

doing the section, particularly as my patient has had no unfavorable symptoms since. When she left the hospital, which was a number of weeks after the operation, the vagina had shown no disposition to unite again. The woman was instructed to report to me if such a condition arose, and, as I have not heard from her up to the present time, it is fair to presume that there has not been a closure.

The atresia following labor is usually connected with some complication of the labor itself. Neugebauer¹ has collected one hundred and seventy-six cases of acquired atresia of the vagina of puerperal origin, and in the vast majority of them it was connected with complications of labor.

I should be pleased to have the opinion of the Fellows in relation to the advisability of making an exploratory incision when there is doubt as to the existence of hematosalpinx. In this particular case to make a positive diagnosis was practically impossible, as, owing to the immense size of the hematocolpos, I was unable to distinctly map out the uterine appendages.

344 SOUTH 16TH STREET.

A REMARKABLE CASE OF ACQUIRED ATRESIA OF THE VAGINA.²

BY

BARTON COOKE HIRST, M.D.

THE case about to be reported possesses some features in its etiology and treatment which are, I think, unique. In the comprehensive statistics just collected and published by Neugebauer³ there is nothing exactly like it.

Rosina — was delivered of her first child in July, 1892. She states that a woman physician in charge of the confinement "cut her and then sewed her up again." A year later another

¹ "Zur Lehre von den angeborenen und erworbenen Verwachsungen und Verengerungen der Scheide," etc., Berlin, 1895. (One hundred and seventy-six cases.)

² Read before the Section on Gynecology, College of Physicians of Philadelphia.

³ "Zur Lehre von den angeborenen und erworbenen Verwachsungen und Verengerungen der Scheide," etc., Berlin, 1895. (One thousand cases.)

woman physician did two operations upon her vagina, the nature of which the patient does not know. A month or two later she fell into the hands of a gynecologist, who removed both of her ovaries. As it appeared later, this gynecologist must have operated on her without making a vaginal examination. In the following spring the woman was conscious of a swelling in the lower abdomen and suffered great pain. A few months later there was a sudden discharge of a large quantity of bloody fluid from the urethra (rupture of a hematocolpos into the bladder), whereupon the pain and swelling disappeared. These symptoms, however, reappeared, and in the following winter (December, 1894) my friend Dr. Edward Martin, whom the patient consulted, found an atresia of the vagina at its upper third, and in the line of atresia a row of silver sutures that must have been there since July, 1893.

The sutures were removed and the hematocolpos opened, but in doing this a vesico-vaginal fistula was established. In a short time the vagina closed again completely, but the vesico-vaginal fistula persisted. Two attempts were made to close the fistula, without success. In the meantime there had been again a collection of menstrual discharge in the vagina with a reappearance of the old symptoms. It was found impossible to tap this collection through the vagina, or to reopen the vagina without enlarging the vesico-vaginal fistula and endangering the ureters. An attempt was therefore made by Dr. Lainé, in Dr. Martin's absence, to evacuate the fluid by a puncture through the rectum. This succeeded, but the vagina refilled rapidly and the woman became quite seriously ill, with high fever, a hectic flush upon her cheeks, prostration, and rapid loss of weight. In this condition she was put under my care in the Howard Hospital.

On examination I found a large vesico-vaginal fistula, an atresia of the vagina in its upper third, with extreme cicatricial contraction, and, as the result of ulceration, a mere bridge of connective tissue separating bladder and rectum. Above the point of atresia there could be felt by rectal and abdominal examination a cystic tumor which was extremely sensitive. In view of the repeated failures to keep the vagina open, and on account of the likelihood of injuring both bladder and rectum in an attempt to make the opening large enough for a permanently successful result, I determined to perform hysterectomy as the surest means of preventing a reaccumulation of fluid

above the point of vaginal closure. This was done four months ago. I found that a portion of one ovary remained from the last abdominal operation, explaining the persistence of menstruation. As I cut off the womb a fountain of pus gushed from the cervical canal and deluged the pelvic peritoneum. The latter was cleansed by the dry method and the cavity closed without drainage. The layer of connective tissue joining bladder and rectum and obliterating the vagina was then punctured, and the purulent fluid remaining in the vagina evacuated. The woman made a good recovery. I have recently closed the vesico-vaginal fistula successfully, and the patient is now perfectly well.

Appended is the list of ten operations by six physicians to which this patient was subjected before she was cured :

Operation on the vagina during labor (Dr. G.); two plastic operations in the vagina (Dr. F.); a salpingo-oöphorectomy (Dr. P.); operation for atresia of the vagina (Dr. M.); two unsuccessful operations on a vesico-vaginal fistula (Dr. M.); puncture of the hematocolpos through the rectum (Dr. L.); hysterectomy and discission of the vagina (Dr. H.); operation on vesico-vaginal fistula (Dr. H.).

1821 SPRUCE STREET.

SO CALLED PUERPERAL ECLAMPSIA IN ITS RELATION TO INSANITY.¹

BY

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THERE is a tendency on the part of most of us to accept foreign statistics, especially those coming from Germany, as representing unqualifiedly the status of any given condition in this country, as well as in the country from which such statistics have emanated. The differences in the habits of life, the modifications due to environment, and the constitution of the peoples of other nations are either overlooked or ignored, and the results

¹ Read before the American Association of Obstetricians and Gynecologists, September, 1895.

of investigations abroad credited as obtaining in the same degree in like conditions in the New World as in the Old. While foreign statistics of disease are exceedingly important and valuable to us in many ways, I am convinced that they are often misleading as regards corresponding conditions in our own country, and hence should be more generally looked upon as local contributions only to the sum total of our knowledge of a given subject.

Some four years ago, in an able and elaborate paper by Ols-hausen on the puerperal psychoses, with especial reference to insanity as a sequel of eclampsia,¹ a greater importance was given to the latter disorder than the experience of the majority of American observers would seem to warrant. In the following brief communication I have summed up the results of my own researches in this matter, and I believe that, for this country at least, the figures presented represent more correctly the connection between the two disorders than do those of the authority referred to.

An attempt to establish a relationship between two morbid somatic affections, the one acting as cause, the other appearing as effect, presupposes a knowledge of the etiology of the exciting agent. Of so-called puerperal eclampsia as a factor in the production of insanity this cannot be claimed; for, while the literature of this disorder is voluminous, our actual knowledge as to its origin is still indefinite and unsatisfactory, and any effort to trace the connection between the two diseases by arguments based on the various theories and hypotheses which have already been advanced as to its etiology must inevitably lead to disappointment and confusion.

In discussing the relationship of these two conditions, therefore, we must acknowledge our ignorance concerning the primary etiological factors concerned in the production of eclampsia, and attempt the solution of the question of its bearing on insanity by confining our attention to the investigation of such facts as may be at our disposal.

According to the latest statistics to which I have had access, those of Bidder,² in 60,583 deliveries eclampsia occurred 455 times, or once in about 133 labors. Of this number 79, or 17.3

¹ *Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xxi., H. ii., p. 371, 1891.

² *Archiv für Gynäkologie*, Bd. xlv., 1893, p. 165.

per cent, proved fatal; but as 31 of the women died of complicating disorders—sepsis and pneumonia—only 48, or 10.5 per cent, can be said to have succumbed to the convulsive attacks. These figures are much lower than those given by Goldberg,¹ who records a mortality of 24.7 per cent. Accepting Bidder's 10.5 per cent as the lowest mortality, we have left 89.5 per cent of eclamptic women to be accounted for as cured, that is, as recovered from the immediate effects of the convulsive disorder. We are informed by obstetrical writers, however, that, while recovery from the primary disease may take place, other conditions, notably insanity, may follow in its wake; and as the original malady is one in which the nervous system is principally involved, it would be natural to suppose that the number of cases of mental breakdown would be not inconsiderable, as pointed out by Olshausen.²

To ascertain this point I have had recourse to three sources of information:

- A. Statistics from private practice.
- B. Statistics from the lying-in hospital.
- C. The records of hospitals for the insane.

A. Never having had a case of insanity following eclampsia in my own practice, I have collected 8,868 cases of delivery reported by eight competent observers and published in current literature. In this number I find that eclampsia is noted as having occurred 33 times. *In not a single instance is it stated that insanity followed the convulsive attacks.*

B. During the four years 1891–94, inclusive, 282 women were delivered in the wards of the Detroit Woman's Hospital, eclampsia occurring in two cases. Both of these recovered without symptoms of mental alienation.³ This seems the more remarkable since of the whole number of patients confined 233 were unmarried.⁴

C. During the same period (1891–94) there were admitted to the three principal asylums of Michigan with which I am connected 1,271 female patients. In this number the insanity was attributed to puerperal causes in 110 instances. In two cases only was eclampsia put down as the exciting cause, and one

¹ Archiv für Gynäkologie, Bd. xli., 1891, p. 295; Bd. xlii., p. 87.

² These statistics have been introduced for comparison.

³ Both of these cases occurred during my own service.

⁴ Statistics furnished by Dr. Jessie L. Herrick, Senior House Physician.

of these patients was a readmission, the woman having recovered some years before from the original mental sickness.¹

While the number of cases which I have brought together in the above statistics is not large, it is sufficient, if the three different sources of information are considered, to enable us to arrive at a definite, and I believe accurate, conclusion regarding the relationship existing between puerperal eclampsia and insanity. The conclusion is that insanity as a sequel to puerperal convulsions is of such exceedingly rare occurrence in this country as hardly to deserve consideration in this connection.

32 ADAMS AVENUE, W.

THREE RECENT CASES IN GALL-BLADDER SURGERY.²

BY

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Cincinnati, O.

WHEN we have a gall stone or gall stones in the bladder, cystic duct, or common duct, the biliary flow need not for a time be interrupted. When the stone is primarily engaged in the lower end of the gall bladder or in the common duct, then a pathological lesion begins. The stopping of the flow of the bile may be intermittent or constant enough to produce symptoms indicating tension. Then we can have an obstruction of the common duct due to external trauma, such as a blow received over the region of the liver. With this catarrhal condition of the common duct is usually found distention as the result of bile not being carried on through the gall ducts. Then we may have a solitary calculus engaged in the lower end of the gall bladder, causing thickening of its wall, with the periodical escape of infected or non-infected contents. It is claimed by some operators that gall stones are never preformed in the hepatic or common duct. If such is true we have some wonderful phe-

¹ I am indebted to Drs. Edwards, Ostrander, and MacGurgan, of the Michigan; Dr. Morse, of the Eastern; and Dr. J. D. Munson, of the Northern Asylum, for examining the records of their respective institutions for these figures.

² Read before the American Association of Obstetricians and Gynecologists, September, 1895.

nomena to account for, in which calculi were found post mortem in great numbers in the hepatic duct and liver substance and none in the gall bladder, cystic or common duct.

As there is the possibility of finding one or more stones in the hepatic duct, I make it a rule to try to introduce a probe into the hepatic duct after the gall bladder has been incised, even though nothing but a catarrhal condition is found. The first successful probing of this kind was reported to the Southern Surgical and Gynecological Society at the last meeting in Louisville.

CASE I.—Mrs. H., white, 52, German, and a patient of Dr. Campbell, of Vanceburg, Ky. Consulted me February 1st, 1895. While she had some pain in the region of the stomach, followed by attacks of diarrhea, she said that she had been but slightly jaundiced within the eight years. She was suffering from intestinal digestion with diarrhea; there was marked eructation of gas, and she said that it was seldom that her stools were other than grayish in color; there was no marked loss of flesh, nor did she ever have typical attacks of biliary colic. She said that it was seldom that she could take food without causing dull, heavy pain in the stomach. Three years previously Dr. Campbell had made a diagnosis of gall stone and urged surgical interference. There had been occasional attacks of vomiting that were severe enough at times to cause hematemesis.

On examination I found a tender spot a little to the right of the median line and over the region of the gall bladder; on deep pressure a nodule could be felt; the pressure elicited much pain. Diagnosis of gall stone was made and surgical interference urged. The abdomen was opened on the following day, February 2d, and the gall bladder was found only moderately distended. Upon passing the finger down alongside of the bladder under the pylorus a stone could be felt through the wall. The bladder wall, which was thickened, was incised and quite a quantity of fluid removed. Passing the Tait alligator forceps (closed) well down into the bladder, the same being held up into the wound by catch forceps, the click was readily gotten, and, opening the blades with some difficulty, the stone, weighing one hundred and twenty grains, was dislodged. The small end of the olive-pointed probe was passed down into the common duct and an effort made to probe it, without success. Satisfying

myself that I could not pass the probe through the common duct into the duodenum, I withdrew the probe and bent it, passing it down into the wound with the end pressing against the upper gall-bladder wall. I thus readily passed the end into the hepatic duct for quite a little distance, and satisfied myself that this calculus was beginning to distend the upper end of the common duct; in other words, that it lay at the junction of the common and hepatic ducts. I stitched the incised bladder into the abdominal incision with silkworm gut, leaving an opening through which the lower end of a glass tube was passed for drainage down into the lower end of the gall bladder. This bladder was flushed morning and night with warm filtered water by means of a common metal syringe, with the patient on her right side. The débris washed out through this tube for seven days following the operation was remarkable. At this time my assistant, Dr. Robinson, was instructed to give her one-tenth of a grain of calomel every hour until she had taken one grain. By the time the last dose was administered the dressings were flooded with bile. Within twenty-four hours a saline was administered; bowels moved promptly, but no sign of any biliary admixture in same. The flushing was kept up morning and night for another week and the calomel repeated, followed by salines. The stools were then of proper color; with this condition present the tube was removed and the wound allowed to heal. The patient went home at the end of four weeks minus her diarrhea, and her health since has been all that could be desired.

CASE II.—John F., white, æt. 28, a vigorous countryman, brought to me by Dr. Hill, of Vanceburg, Ky. In felling a tree he had received a blow over the liver, knocking him a distance of twenty feet, was picked up unconscious, carried to his home, and put to bed. He soon rallied from the shock, and within two days a marked tenderness with distention was discovered over the region of the gall bladder; this distention greatly increased for five weeks, during which time Dr. Robert M. Biggs saw him in consultation. At the end of five weeks he was brought to my hospital. I found that he had had clay-colored stools for four weeks, was very much emaciated, and the pain in the region of the distention was so great that he had to be kept under the influence of morphia. The tumor was even

in its development and round, the lower end broader, extending almost to the crest of the right ilium. I diagnosed an obstructed common duct and urged that a cholecystotomy be done immediately. Patient was given a bath, bowels moved by salines, and on the following morning at 10 o'clock I cut down on the gall bladder, finding it adherent to the abdominal wall. Plunging the curved trocar into the gall bladder, I drew from it into a large bowl fluid that by actual measurement was *one hundred and twenty ounces*. I tried to pass the small end of a probe into the common duct, and found that the lower end of it was obstructed. Curving the probe, I readily passed the curved end into the hepatic duct. The lower end of a glass drainage tube was passed down into the gall bladder, through which the bladder was washed out morning and night for ten days, at which time one-tenth of a grain of calomel was given every hour until one grain had been taken; the dressings were flooded with biliary fluid, but the salines administered by mouth did not bring any change to the condition of the stools. The flushing was kept up for another week and the stools began to show some signs of changing to the desired color; calomel was repeated until the stools became of the proper color, the drainage tube was removed, and the wound allowed to heal. The convalescence of this patient was all that could be desired, and a letter from his brother tells me that his health is perfect.

CASE III.—Mrs. L., æt. 38, a patient of Dr. Halderman, of Portsmouth, Ohio, mother of three children. Says that she cannot recollect the time when she did not have a "sallow skin." For years she has suffered from attacks of pain, moderately severe, over the region of the liver; her dejections have seldom been of a golden-yellow color. During the past four years the pain has rather increased in severity; especially has this been the case for the past year, necessitating the use of opium. The administration of calomel followed by salines failed to give relief from pain during the prior six months, and consequently she, with her husband, was ready to accept any procedure that promised relief. Dr. Halderman had watched the stools carefully, having the same washed, without finding any calculi.

Upon examination I found her thin in flesh; pressure over the gall bladder caused pain, although no distention could be

mapped out. So thoroughly was I convinced that the suffering was from an obstructed common duct that I urged an exploratory incision. This was consented to, and on the 18th day of May, 1895, with the assistance of Drs. Halderman and Kline, I opened the abdomen over the gall bladder, finding it two-thirds filled with fluid; the gall-bladder wall was thick—thicker than any that I have ever seen. Massage failed to force out the fluid. After the fluid had been carefully drawn off and the parts sponged, I tried to explore the cystic common duct with the olive-pointed end of a probe, without success; no calculi by click or sense of touch could be found. As the fluid was not septic, I decided to do a cholecystenterostomy with the aid of the smaller-sized Murphy button. The button was passed on the thirteenth day, while the patient has had no pain, but steadily gained in strength and flesh. Her color has improved, while the tri-weekly dose of opium is a thing of the past.

137 BROADWAY.

A CONSIDERATION OF SOME OF THE NEWER PROBLEMS IN ABDOMINAL AND PELVIC SURGERY IN WOMEN.

BY

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It is my purpose in this paper to discuss briefly some of the newer problems in abdominal and pelvic surgery in women which at this time are attracting so much attention not only among gynecologists but also in the profession at large. I shall report my work at the Kensington Hospital for Women during its past fiscal year, together with the results obtained, and consider whether these results would have been altered for better or for worse had I made use of other methods of treatment than those employed.

Forty patients have had non-operative treatment or the rest cure. Of these one died.¹

Celiotomy has been performed one hundred and nineteen times for various conditions, with six deaths and one hundred and thirteen recoveries.

¹ See seventh death.

ABDOMINAL HYSTERECTOMIES, 37.

For fibromata 16

Complications.—Malignant degeneration, 1; ovarian cyst, 1; ovarian cyst with unruptured tubal pregnancy—fetus, 1; parovarian cyst, 1; unilateral hydrosalpinx, 3; bilateral hydrosalpinx, 2; bilateral pyosalpinx, 1; calcareous and cystic degeneration, 1; bilateral salpingitis with dense adhesions, 1.

For ovarian tumor, retroflexion of the uterus, and adhesions (the other ovary previously removed for suppurating tumor)..... 1

For unilateral pyosalpinx, salpingitis, and retroflexion of the uterus, 1

For bilateral pyosalpinx..... 4

For bilateral pyosalpinx and suppurating ovarian tumor 1

For bilateral hydrosalpinx 1

For bilateral ovarian tumors..... 1

For retroflexion of uterus, prolapsed, cystic, and enlarged ovaries, 1

For cirrhotic ovary and incurable metrorrhagia (other ovary removed four years before).... 1

For bilateral hematoma of ovaries, salpingitis, and adhesions. . . 1

For bilateral salpingitis and ovariitis, with retroflexion of the uterus and adhesions..... 8

For suppurating left intraligamentous ovarian cyst (one gallon) and right hydrosalpinx..... 1

OVARIOTOMIES.

Single..... 9

Double 2

Complications.—Resected ovary, 1; pyosalpinx, 1; malignant degeneration, 2; salpingitis and dense adhesions, 1; suppuration in cyst, 1.

In eleven other cases ovarian tumors were removed which are not classed under this head.

TUBAL PREGNANCIES.

Unruptured..... 3

Ruptured..... 5

Complications.—Gangrene of left tube and broad ligament, 1; hydrosalpinx, 1.

PYOSALPINX.

Unilateral..... 4

Bilateral 8

Complications.—Suppurating ovarian tumors, 2; non-suppurating ovarian tumors, 3; suppurating ovaries, 4; intraperitoneal abscesses, 3.

In eight other cases pus tubes were removed which are not classified under this head.

HYDROSALPINX.

Single..... 1

Double..... 1

In seven other cases hydrosalpinx was dealt with, not included under this head.

CHRONIC SALPINGITIS, OVARITIS, AND ADHESIONS, 11.

Unilateral.....	6
Bilateral	5

HYSTERORRHAPHY, 28.

Simple hysterorrhaphy, no adhesions.....	1
Combined with plastic operations, no adhesions.....	12
Combined with some other abdominal operations, or when adhesions existed.....	15

HERNIOTOMY.

For post-operative ventral hernia.....	3
Adventitious cyst, infected pedicles.....	3
Appendicitis (one abscess).....	7
Abdominal myomectomy.....	3
Parovarian cysts	3
Chronic ovaritis, both ovaries removed.....	2
“ “ one ovary removed.....	3
Acute salpingitis and peritonitis	1
Pelvic abscess.....	1
Cancer of the omentum	1
Cholecystotomy	1
Exploratory section	1

In addition two hundred and thirty-eight other operations have been done, as follows :

Miscellaneous operations ...	23
Shortening of the round ligaments.....	4
Vaginal hysterectomy.....	2
Vaginal myomectomy	1
Closing of a vesico-vaginal fistula.....	1
Ligation of the uterine arteries.....	4
Nephrorrhaphy (in two cases double).....	5
Dilatation and curetting	71
Perineorrhaphy	62
Trachelorrhaphy.....	27
Amputation of the cervix uteri	24
Anterior colporrhaphy.....	14

Of this miscellaneous list of operations (excluding the abdominal sections) it is unnecessary to say much. The mere report of the cases themselves indicates the general character of the work done. All of these cases recovered, and in the plastic operations primary union was obtained in every case. In my opinion the principles upon which the plastic surgery of women should be done have been so thoroughly worked out by Sims and Emmet (with some minor exceptions) that but little is left to their successors except to follow in their footsteps. Improvements in this field must be in minor details.

Deaths.—There have been seven deaths in the hospital during the year, six of these following the operation of abdominal section.

The first death was in a case of suppurating hematocele due to a ruptured tubal pregnancy. The patient had general septicemia with a temperature of 104° at the time of the operation, and had gangrene of the ruptured left tube and broad ligament. With irrigation and drainage of the pelvis the local conditions improved somewhat, but the patient died of general septicemia on the seventh day after the operation. General peritonitis did not develop. This patient died because she was not operated upon sooner. Knowing the conditions in the case, blame does not attach to any one except the patient herself, as operation was suggested earlier by her family attendant but not accepted. Moreover, the progress of this case was very insidious, and it did not appear before the operation that she was in such a desperate condition.

The second death was in a case of appendicitis with abscess and with pelvic peritonitis. This patient had been in bed many weeks, first with an acute appendicitis which apparently had subsided, and second with an attack of pelvic peritonitis resulting in the binding down of the uterus and its appendages. It was not believed that there was an abscess in this case, as the mass which had existed earlier in its history had disappeared. Therefore it was thought possible to cure both the disease of the appendix and the adherent uterus and appendages with one operation. The uterus and appendages were freed from adhesions and a hysterorrhaphy was done. Next the appendix region was investigated through the same incision, when it was found that a small abscess was present behind the cecum. When this was discovered a second incision over the appendix region was made for gauze packing and drainage, but infection had occurred and the patient died of acute septic peritonitis. It is possible that had the pelvic organs not been disturbed, and had the incision been made directly over the cecum, this patient might have recovered.

The third death was in a case of double pyosalpinx and intra-peritoneal abscess in a patient very much broken down from septic absorption and who had had septic fever for weeks. She was decidedly septic at the time of operation. This operation was done rapidly, and the pelvis thoroughly irrigated and drained

both with gauze and a glass tube, but she died of septicemia on the fourth day. It was my intention in this case, knowing her prostrated condition and that septicemia was present, to drain if possible by the vagina and to leave the pelvic structures in, to be removed if necessary at some subsequent period. On opening the abdomen, however, the barriers between the pus and general peritoneal cavity were so frail that I thought it extremely doubtful whether the pus could be evacuated without breaking into the general peritoneal cavity. Moreover, the pus tube on the left side contained several septa, and a portion of this pus tube could not have been drained, as it was attached high up in front of the broad ligament. This patient's life might have been saved had drainage only been employed, but this is a matter of great doubt. This patient died because she was operated upon "too late."

The fourth death was in a case of fibroid tumor in a woman 67 years of age. She had had "womb trouble" for forty years and had known of the existence of the tumor for at least fifteen years. The pelvic portion of the fibroid had undergone calcification, and another part had undergone cystic degeneration. The pressure of the tumor upon the bladder and ureters gave her such torment that she demanded operation in spite of a bad prognosis, which was given partly on account of her age and of her calcified arteries, but more especially because of very defective urinary secretion. The tumor was removed without difficulty, but she died of suppression of urine on the fourth day. No autopsy was permitted, but there was no reason to suspect the ligation of a ureter, as she passed urine freely for the first day.

The fifth death was in a patient having a retroflexed and adherent uterus and adherent appendages (recurrent peritonitis), upon whom a hysterectomy with removal of the appendages was performed. This operation was done May 31st, the first hot weather of this year, and the patient died of heat-stroke on the second day. Two other patients were operated upon the same day, both of whom were affected by the heat in a minor degree, but recovered under the use of ice baths. In the patient who died it was impossible to keep the temperature below 103°, even by ice packs. This is the second patient in my experience who has died from heat stroke after operation. It is of interest to note that several other patients operated upon

in other hospitals in Philadelphia the same day also suffered from heat-stroke.

The sixth death was that of a woman having a suppurating ovarian tumor, who had had septic fever for five weeks before her operation, and who was greatly prostrated and distinctly septic at the time of operation. The tumor contained four quarts of pus. She died of septicemia on the second day. It is unnecessary to point out that the tumor should have been removed so soon as attention was called to it by the septic symptoms.

The seventh death was in a patient suffering from ovarian tumor, who was admitted to the hospital for operation when in the last stages of inanition from this disease. She died shortly after her admission and before an operation was performed. This woman had seen a number of physicians, who differed in their diagnosis and advice. She was recommended at last to consult a surgeon by a woman electrician. It brings up curious reflections upon the efficiency of medical advice, that an ovarian tumor should have been permitted to grow until it caused the death of this patient, and that in 1895 in the city of Philadelphia.

Trachelorrhaphy versus Amputation of the Cervix.—Trachelorrhaphy has been performed twenty-seven times, amputation of the cervix uteri twenty-four times, and anterior colporrhaphy fourteen times. The relation of these operations is of interest, as showing that amputation of the cervix has been chosen in preference to trachelorrhaphy about ten times. The other amputations of the cervix have been done for cases of procidentia. It is my practice, whenever the cervix is so thoroughly diseased that the morbid tissue cannot be removed satisfactorily by doing trachelorrhaphy, to perform an amputation of the cervix. In this way I feel sure that better results can be obtained than by attempting to restore the contour of the cervix. I believe that this opinion is shared by the originator of the operation of trachelorrhaphy, Dr. Emmet.

The Conservative Principle in Abdominal Surgery.—Of the one hundred and nineteen cases reported, in sixty-four both the uterine appendages, with or without the uterus, were removed; in twenty-three one uterine appendage was removed; and in thirty-two none of the sexual organs were removed. The last group includes cases of hysterorrhaphy, the breaking-up of

adhesions, myomectomy, and abdominal operations proper as distinguished from operations on the pelvis. In other words, in fifty-three of the one hundred and nineteen patients the functions of ovulation, menstruation, etc., were not interfered with by the operations. In several cases in which one ovary and tube were removed, and minor disease, such as hematoma or small follicular tumors, existed in the opposite ovary, the diseased part was excised, the wound sutured, and the remaining part of the ovary dropped back. In all my work the principle has been recognized that the functions proper to women should not be interfered with except for good and sufficient reasons. The nature of this paper prevents a full account of the results obtained in carrying out this principle, more especially in cases in which a certain grade of salpingitis is present, especially when the appendages have been bound down by adhesions. Suffice it to say that the results obtained make it worth while, in my judgment, to carry out the principle in the case of young women in whom maternity is desired or may become possible. On the other hand, there is no doubt that the results in many of these cases are disappointing, and that subsequently the remaining ovary and tube must be removed in order to restore the patient to health.

Suspensio Uteri versus Shortening of the Round Ligaments.

—It will be observed that in four cases the round ligaments were shortened for retroversion or retroflexion of the uterus, whereas suspensio uteri was done twenty-eight times, and of this number in thirteen cases in which adhesions were absent hysterorrhaphy was the only intra-abdominal operation performed. In twelve of the thirteen cases plastic operations were done at the same time. In other words, in the class of cases where either operation could have been done the round ligaments were shortened four times and suspension was done thirteen times. My experience has been very much greater with suspension of the uterus than with shortening of the round ligaments. I like both the operations very much, as the results obtained have been most satisfactory. In all of the cases in which I have shortened the round ligaments the uterus remains in position. This does not include a case in which I attempted the operation and failed to find the ligaments—the first time in which I made the effort. Of the cases in which hysterorrhaphy has been done, so far as I know, not only in these reported to

night but in all the previous cases in which I have operated, the uterus remains forward except in two cases. In one case the patient had a septic peritonitis and it was necessary to reopen the abdomen to wash out the septic material, at which time the sutures through the uterus were removed and not reintroduced. This patient remains well, but her uterus is not attached to the abdominal wall. It was a case of procidentia in which plastic operations were done and then the adherent ovaries and tubes were removed and a hysterorrhaphy performed. One of the tubes had been transformed into a hydrosalpinx. The second case in which the uterus has not remained attached to the abdominal wall was one in which on the third or fourth day the bladder became over-distended and tore out the sutures from the uterus. This patient was apparently emptying her bladder and deceived her nurses in this way. Attention was called to the over-distention by abdominal pain, which on investigation was found to be due to a bladder sufficiently filled to extend up to the umbilicus.

The relative merits of hysterorrhaphy and shortening of the round ligaments is a question which merits attention. In my judgment the field of suspension of the uterus is very much wider than that of shortening of the round ligaments. The latter operation should be limited to those cases of retroversion or prolapse of the uterus in which the uterus is freely movable and the broad ligaments so flaccid as to assure the examiner that adhesions are absent or of a very trifling character. This last clause is added because adhesions of a very trifling character cannot be recognized by bimanual examination. Really the operation should be limited to cases in which adhesions are absent. On the other hand, suspension is applicable not only to this class of cases, but to cases in which adhesions more or less dense exist as a complication of the retroflexion or prolapse of the uterus. My preference is to shorten the round ligaments in cases having no adhesions, if the patient is young and liable to become pregnant, as I believe that pregnancy and labor are less likely to be interfered with than is the case when the uterus is attached to the abdominal wall. Hysterorrhaphy must be employed whenever there are adhesions, and oftentimes when there are none. For example: Of the twenty-eight hysterorrhaphies reported to-night twelve have been done in cases of procidentia or retroflexion of the uterus in which plastic operations were

also performed upon the same patient at the same sitting. In all such cases I prefer hysterorrhaphy because of the much shorter time which is required for its performance. Ten or fifteen minutes suffice for a carefully performed hysterorrhaphy, whereas it requires at least three-quarters of an hour to shorten the round ligaments. The interests of the patient are best subserved by selecting hysterorrhaphy in cases in which it is necessary to do a number of operations upon the same patient on the same day.

In parallel cases, in my judgment, the risks of the two operations are about the same. In a well-conducted clinic the mere opening of the abdominal cavity is in itself a risk so slight as to be scarcely appreciable. Moreover, in shortening the round ligaments not infrequently the peritoneal cavity will be opened, and not only once but twice. I have a number of times torn the peritoneum in both inguinal canals when stripping it off from the round ligaments; therefore even this slight risk is not necessarily avoided in the operation of shortening the round ligaments. In my judgment its advantages are that it is less apt to interfere with pregnancy or labor, and its disadvantages, as compared with suspension of the uterus, consist of the increased length of time necessary for its performance, and the fact that occasionally adhesions are overlooked which may subsequently require an abdominal operation to relieve pain, caused by putting them on the stretch when the uterus is brought forward.

It will be observed that in no case has vaginofixation of the uterus been performed. This operation, of German origin, has not impressed itself favorably upon me. That much can be said in its favor I am prepared to admit, but am too well satisfied with the results obtained by hysterorrhaphy and by shortening of the round ligaments to choose it in preference.

Suturing the Abdominal Incision. Hernia.—There have been three post-operative herniotomies for ventral hernia. One of these was in a patient upon whom I had operated for a ruptured tubal pregnancy, using drainage and the through-and-through suture. The second was in a patient upon whom I had operated for a suppurating ovarian tumor communicating with the rectum, the patient being at the time greatly prostrated from long-continued suppuration and septic absorption. At the first operation the suppurating tumor was removed by peeling it out of its bed, and when removed there was no point requiring a

ligature. The patient was so profoundly shocked at this time that the opposite appendage was not examined. Gauze and glass drainage was used and the through-and-through suture. Both of these patients belong to the class which are apt to develop hernia. They are prostrated at the time of operation, so that this has to be hurriedly performed; drainage must be used, and the suturing of the abdominal wall done in a very imperfect manner. Everything has to yield to the necessity for shortening the operation to the utmost possible degree, otherwise the patient dies from shock or sepsis, the latter being very much more apt to develop in a prostrated patient. I always tell such patients that they should feel rather glad that they have a hernia, as had they not recovered from the operation they would not be bothered with it. The third patient had been operated upon in another hospital for adherent appendages, the adhesions having been broken up with the idea that a cure would result. On the contrary, the adhesions reformed and the patient suffered not only from retroflexion of the uterus and adherent and diseased appendages, but from a hernia in addition. At the first operation, I believe, through-and-through suturing was employed. In the second case a thin-walled ovarian tumor was present, and this, together with the retroflexed and adherent uterus, was removed. In the third case the diseased and adherent appendages, together with the retroflexed and adherent uterus, were removed.

These three cases of hernia are reported in order to refer to the method employed in closing the abdominal wall, which is applicable not only to cases of post-operative ventral hernia, but also to the abdominal incision in all cases of celiotomy in which abdominal drainage is not necessary. This method of suturing has been employed for three and a half years in about two hundred cases, with the result that not a single hernia has presented itself.¹

¹ To be absolutely exact I should report that in a case of tubercular pyosalpinx and tubercular peritonitis in which the method was used the incision became infected and all of the sutures were discharged. In this case a hernia formed about one year after the operation. In a second case an umbilical hernia in a very stout lady was operated upon, and the pillars of the ring were brought together by this method of suturing. About a year after the operation a hernia appeared to the left of the line of suture. It is scarcely necessary to point out that the object of the suturing was defeated by suppuration in the first case, and that the conditions are essentially different in umbilical hernia from those which obtain in abdominal section in general.

The method of suturing referred to is to bury a row of silkworm gut sutures at the level of the aponeurosis, thus closing the peritoneum, subperitoneal fat, recti muscles, and aponeurosis. The edges of the aponeurosis are brought together under the guidance of vision, which I believe is the secret of the success of the method in preventing hernia. The skin and subcutaneous fat are then brought together by superficial sutures introduced down to the aponeurosis, so that dead spaces shall not be left in the abdominal wall. If proper asepsis is maintained suppuration is an extremely rare accident. The method was employed for over two years without a single suppuration, when two patients operated upon the same day suppurated. In other words, on that day somebody's hands were not clean or the suture material was not properly sterilized. My results with this method of closing the abdominal wall have been so satisfactory that I am not tempted to change it. It has been proposed to substitute silver wire for silkworm gut, and this has been done by various operators because of the suppurations which occurred with the silkworm gut. This, however, is purely a question of asepsis, and if this can be maintained there will be no occasion for a variation in the technique. The use of non-absorbable buried sutures, I believe, is original with Schede,¹ of Hamburg, and has been employed more especially by Edebohl and myself in this country. My experience with it is now sufficient to enable me to claim that by it hernias after abdominal section can be reduced practically to the vanishing point.

Abdominal Hysterectomy.—Thirty-seven abdominal hysterectomies were performed. Sixteen abdominal hysterectomies were for fibroids. In these sixteen cases the following complications were met with:

In one, malignant degeneration; in one, an ovarian cyst; in one, an ovarian cyst with unruptured tubal pregnancy—fetus; in one, bilateral pyosalpinx; in one, a parovarian cyst; in three, unilateral hydrosalpinx; in two, bilateral hydrosalpinx; in one, calcareous and cystic degeneration; in one, bilateral salpingitis with dense adhesions. Of these patients one died.²

The remaining twenty-one abdominal hysterectomies were done for the following conditions:

¹ Schede uses buried silver-wire sutures and also "through-and-through" wire sutures.

² See fourth death.

One, ovarian tumor, retroflexion of the uterus and adhesions;¹ one, unilateral pyosalpinx, salpingitis, and retroflexion of the uterus; four, bilateral pyosalpinx; one, bilateral pyosalpinx and suppurating ovarian tumor; one, bilateral hydrosalpinx; one, bilateral ovarian tumors; one, retroflexion of uterus, prolapsed and cystic enlarged ovaries; one, cirrhotic ovary and incurable metrorrhagia;² one, bilateral hematoma of ovaries, salpingitis, and adhesions; eight, bilateral salpingitis and ovariitis, with retroflexion of the uterus and adhesions;³ one, suppurating left intraligamentous ovarian cyst, containing one gallon of pus, and right hydrosalpinx—uterus removed on account of oozing from its ragged surface.⁴

Hysterectomy versus the Removal of the Uterine Appendages.—Special attention should be called to the fact that hysterectomy, instead of the usual operation of the removal of the appendages only, was performed in twenty-one cases. In eleven of these the uterus was retroflexed and in ten adherent. Formerly in these cases of “retroflexion and adhesions,” after the removal of the uterine appendages and the separation of all adhesions, either a hysterorrhaphy would have been done or the chance would have been taken that the uterus would again become fixed in retroflexion. When the condition of the patient is fairly good I believe it to be better practice to remove the uterus along with its appendages in these cases, rather than to do a hysterorrhaphy or to allow the uterus to drop back in the pelvis. One of the patients so operated upon died (see fifth death), but a study of the case will afford convincing evidence that the death was due to operation upon a hot day, and not to the fact that a hysterectomy rather than the mere removal of the uterine appendages was done. The two chief advantages of hysterectomy in this class of cases are: 1. That in a certain percentage of them drainage, which would otherwise be necessary, can be dispensed with, thus promoting the subsequent comfort of the patient by reducing the risks of hernia. 2. That the uterus is not left attached to the abdominal wall, with its ragged posterior surface to become attached to the bowels and thus to favor subsequent abdominal pain from adhesions.

¹ The other ovary had been removed for a suppurating tumor. See under herniotomies.

² This patient had had one ovary removed four years before.

³ One died. See fifth death.

⁴ See sixth death.

In the remaining ten cases in which hysterectomy was done instead of the removal of the uterine appendages, in some the uterus was removed in order to permit the ligation of both uterine arteries and thus to control oozing either deep in the pelvis or from the surface of the uterus itself. In other cases the uterus was removed so that the ragged surface behind the broad ligaments could be covered over by the peritoneum dissected from the anterior face of the uterus and the broad ligaments. In this way drainage can frequently be dispensed with when otherwise it would be necessary.

Hysterectomy was done in this class of cases twenty-one times, and the uterine appendages alone were removed twenty-seven times.

My own experience has been different from that reported by many operators as to the permanent result of the removal of the uterine appendages, especially as to disagreeable sequelæ. It is claimed by many operators that in the large percentage of cases, if the uterus is left behind after the removal of the ovaries and tubes, the patients are not restored to health; that they continue to suffer from pelvic pain, hemorrhages, or other symptoms which render their condition either no better than before their operation or perhaps even worse. About a year ago I investigated the results obtained in my early cases, about eighty in number, who had been operated upon long enough to judge of the ultimate result obtained, and found that in only four of them were unfortunate sequelæ present. This is about five per cent. One of the four had metrorrhagia because a portion of one ovary was not removed. Two suffered from pelvic pain of a similar character to that for which the operation had been done. Both of these patients had been chronic invalids for years, and the operations were undertaken with the expectation of benefiting them by doing away with menstruation, rather than of making a perfect cure. It will not gratify the advocates of hysterectomy to know that at the solicitation of one of these two patients her uterus was removed, and that she continues to suffer exactly the same pain as before. Her general health improved very much after the first operation, and instead of being bedridden she is now able to do the greater part of her domestic duties; but the removal of the uterus did not modify the pain which was left after the removal of the appendages. The other similar case has been lost sight of. The

fourth patient had a gonorrheal intraperitoneal abscess with double pus tubes, and still has a gonorrheal endometritis.

While I do not accept the argument as valid that the uterus should be removed with its appendages because if left behind it will almost surely render the patient an invalid, I do believe that in many of these cases it is desirable to remove the uterus along with the ovaries and tubes. From my standpoint, what is gained by hysterectomy in these cases is that oozing can be much better controlled if both uterine as well as both ovarian arteries are tied, and that a very considerable part of the raw surface left after the separation of adherent appendages can be covered over by the flap of peritoneum dissected off from the front of the uterus and broad ligaments. In this way drainage can be dispensed with in many cases when otherwise it should be employed, and the number of hernias following such operations can be greatly reduced. Post operative intestinal adhesions also, I feel confident, will be less common than after the older operation; and the reason for this is quite apparent. A gain is made by removing the uterus itself also in cases of long-standing chronic metritis with a large, infiltrated uterus. Such a uterus, when left behind after the removal of the ovaries, can keep up reflex symptoms.

Abdominal versus Vaginal Hysterectomy.—Abdominal hysterectomy has been performed thirty-seven times, and the uterine appendages only have been removed twenty-seven times, whereas vaginal hysterectomy has been performed but twice. The advocates of vaginal hysterectomy as an improvement upon abdominal section for the removal not only of cancerous uteri, but also for small fibroids, certain ovarian tumors, and for the inflammatory and suppurative diseases of the uterine appendages, will naturally claim that the interests of these women would have been better subserved had vaginal hysterectomy rather than abdominal section been done upon the great majority of them. They advocate vaginal hysterectomy rather than celiotomy upon the following grounds: (1) that after vaginal hysterectomy there are no ventral hernias; (2) that the primary mortality is less than that after celiotomy; (3) that the ultimate results are better than after celiotomy; (4) that the convalescence is shorter than after celiotomy; (5) they claim also that vaginal hysterectomy is especially indicated in the worst cases of pelvic inflammation and suppuration, because

that by it the barrier of adhesions formed by peritonitis, which shuts off the general peritoneal cavity from the pelvis, is not broken down by the operation done from the vagina.

I wish only to point out that, however much truth there may be in the claims now made for vaginal hysterectomy, its advocates have as yet not established their position, and that they have very decidedly overstated its relative merits. They have insisted very strongly upon the great frequency of ventral hernia after celiotomy. The results of those who employ non-absorbable buried sutures, as illustrated by my own report to-night, show that, while there is something in this claim, after all it is of small and relative rather than of absolute importance. Moreover, it may be found that the percentage of vaginal hernias which develop after vaginal hysterectomy is not very dissimilar from that of ventral hernia.

The question of primary mortality is largely a personal matter and depends upon the skill of the operator and upon his judgment in the selection of cases for operation. These factors are again influenced by the conditions which he can control in the clinic in which he operates, and also by his selfishness or unselfishness as to whether he considers the good of his patient or merely the piling-up of statistics embracing a low mortality; and even here I believe the advantage lies with celiotomy. This is indicated by contrasting the mortality of vaginal hysterectomy as given by Jacobs,¹ of Brussels, 4.2 per cent, with that of abdominal hysterectomy given by Baldy, 2.7 per cent, and by the known results obtained by Kelly, between 1 and 2 per cent, and that reported by myself.

The claim that the ultimate results obtained after vaginal hysterectomy are better than after celiotomy, is one which I doubt and which has to be proved by time rather than by argument. I wish merely to point out in this connection, that it is admitted that when vaginal hysterectomy is employed it is necessary in many cases to do partial or incomplete operations, leaving behind ovaries or parts of ovaries, pus tubes or parts of pus tubes, and depending upon drainage to effect a cure. This claim and admission will hardly convince those who have been accustomed to remove completely diseased organs by abdominal section, and who have seen the bad results following incomplete operations.

¹ American Gynecological and Obstetrical Journal, June, 1895, pp. 744-896.

A great deal is said of the advantages of vaginal hysterectomy because after it women can be made to sit up as early as one or two weeks after operation, whereas abdominal surgeons advise their patients to remain in bed from three to four weeks. This argument when investigated is a very weak one, because patients are not well within one or two weeks after vaginal hysterectomy. Their pelvic wounds are not even healed up, and oftentimes even longer after an operation the sloughing processes have not been completed, but give rise to foul, stinking discharges. No surgeon of experience will accept the claim that such patients are well because they can be forced out of bed at this time. One is inclined to suspect that the hygiene of hospital wards makes it desirable that these patients shall be urged to return home at the earliest possible day. When it is recalled that the nutrition of many of these patients is profoundly depraved and that their nervous tone is in a similar condition, it will be admitted that a rest in bed even longer than three or four weeks, under good hygienic conditions and with good food and nursing, is a most valuable factor in restoring them to health.

The final claim that vaginal hysterectomy is especially valuable in the more severe cases of pelvic suppuration, because it does not break down the barrier which shuts off the pelvic disease from the general peritoneal cavity, is unquestionably fallacious. Every abdominal surgeon knows by practical experience that it is extremely rare to meet with a case in which both uterus and appendages are absolutely buried beneath a wall of adhesions. At some point the uterus or the uterine appendages are in relation with the general peritoneal cavity; therefore, whether vaginal or abdominal hysterectomy be done, in these cases the barrier between the pelvic disease and the general peritoneal cavity is broken through. Whatever advantage the method has, it must not be claimed that it permits the removal of the pelvic disease without opening the general peritoneal cavity.

Heretofore in this class of cases I have, with one exception, always operated from above and have removed completely the diseased structures. I have become convinced, however, that it is better surgery to drain these cases by the vagina, by making an incision into Douglas' pouch and breaking up the pus sacs with the finger, either making an abdominal section to assist in the manipulations or not, as may be indicated in the particular case. In this way the barrier can be preserved between the pel-

vic disease and the general peritoneal cavity. Drainage will permit these patients to recover from their septic state, and later they can be operated upon for the removal of diseased structures, if necessary.

I by no means believe that the questions at issue concerning abdominal *versus* vaginal operations have been settled. Like all problems in medicine, they will be settled by the combined experience of the profession, after sufficient time has elapsed to determine definitely the advantages and disadvantages of both methods. I am not inclined, however, to believe that vaginal hysterectomy has a large field—certainly not unless improvements are made whereby operations attempted by this method can be performed with certainty and the present necessity of doing incomplete operations is overcome. When the vagina is roomy and the adhesions not too dense, undoubtedly the operation is entirely feasible from below. But in this class of cases very many patients require plastic work in the vagina; in such cases the abdominal route offers the advantage that both the plastic and the abdominal operations can be done at the same sitting. When the vagina is narrow and the adhesions dense and perplexing, vaginal hysterectomy is rather a demonstration of how by great perseverance and hard work extreme difficulties can be overcome, than an exhibition of the skill of the surgeon in dealing with the complications encountered, and does not compare at all favorably with operation by the abdominal route. The abdominal route offers great advantages in dealing with cancer of the uterus, inasmuch as in this way very much more of the broad ligaments and other tissues surrounding the uterus can be removed. This is especially true if bongies are placed in the ureters, as this permits the removal of very much more tissue than is otherwise possible without injuring these structures.

In conclusion, I wish to point out that a resort to the vaginal method of operating could not have improved the results in the cases reported in this paper. The second and fourth deaths were in cases in which the vaginal method of operation was not applicable. One was a case of abscess behind the cecum, from appendicitis; the other was a case of fibroid tumor extending far above the level of the umbilicus, in which the pelvic portion had undergone calcification, the upper part being cystic. The first and third deaths occurred in patients having general septicemia at the time when they were operated upon. I can see

no ground for the belief that a fatal result would have been averted had the vaginal method been employed. The fifth death occurred from heat-stroke. On the other hand, we do not know how many deaths would have resulted had the vaginal method rather than the abdominal been used. In addition to this aspect of the question, I have no doubt that the remote results will be very much better than they would have been had the vaginal method been employed. Complete operations have been done in every case, which would not have been the case with the use of the lower method. In addition, I can report that not in a single case were fistulæ of the bladder or bowel caused by operation. In two cases bowel fistulæ were present at the time of operation. In one of these a cure has resulted, and in the other the fistula is gradually closing. This is a decidedly better showing than that obtained by the vaginal method. Finally, there is the certainty that these patients will not suffer from recurrent attacks of peritonitis due to diseased tubes left in at the time of operation, or from tumors or abscesses of ovaries left behind as a result of incomplete work.

1637 NORTH BROAD STREET.

ANNOUNCEMENT.

At the conclusion of what has proved to be an exceedingly prosperous year for this JOURNAL, we are happy to announce the completion of arrangements which we feel certain will greatly enhance its value to the general reader as well as to the specialist, and which, while maintaining in every respect the high standard held for nearly a quarter of a century in the departments of gynecology and obstetrics, will enable it to give equal prominence to diseases of children, a feature which has for a number of years been overshadowed by our other interests.

As an important part of this plan we shall publish during the coming year papers on paediatric subjects by a number of distinguished teachers. These papers will contain much valuable material, will embrace widely differing specialties, and will run through all the numbers of the year. Many of them will be illustrated by plates and figures in the text. The writers will include FRANK E. HUNTINGTON BOSWORTH, M.D., Professor of Diseases of the Throat, Bellevue Hospital Medical College, New York; EDWARD BENNET BRONSON, M.D., Professor of

Diseases of the Skin, New York Polyclinic; HENRY D. CHAPIN, M.D., Professor of Diseases of Children, Post-Graduate Medical School, New York; W. S. CHRISTOPHER, M.D., Professor of Pediatrics, College of Physicians and Surgeons, Chicago; H. P. COOKE, M.D., Professor of Pediatrics, University of Texas; ROBERT H. M. DAWBARN, M.D., Professor of Surgery, New York Polyclinic; D. BRYSON DELAVAN, M.D., Professor of Diseases of the Throat, Medical Department of Columbia College, New York; EDWARD BRADFORD DENCH, M.D., Professor of Diseases of the Ear, Bellevue Hospital Medical College, New York; FRANCIS X. DERCUM, M.D., Professor of Diseases of the Nervous System, Jefferson Medical College, Philadelphia; H. M. McCLANAHAN, M.D., Professor of Diseases of Children, Omaha Medical College, Omaha; C. F. SHOLLENBERGER, M.D., Professor of Pediatrics, Gross Medical College, Denver; HUNTER H. POWELL, M.D., Professor of Obstetrics and Diseases of Children, Western Reserve University, Cleveland; G. E. DE SCHWEINITZ, M.D., Professor of Ophthalmology, Jefferson Medical College, Philadelphia; CHARLES G. STOCKTON, M.D., Professor of Principles and Practice of Medicine, University of Buffalo; GEORGE HENRY FOX, M.D., Professor of Diseases of the Skin, Medical Department of Columbia College, New York; J. P. CROZER GRIFFITH, M.D., Professor of Diseases of Children, University of Pennsylvania, Philadelphia; HOBART AMORY HARE, M.D., Professor of Therapeutics, Jefferson Medical College; PAULUS A. IRVING, M.D., Professor of Diseases of Children, University College of Medicine, Richmond; B. ALEXANDER RANDALL, M.D., Professor of Diseases of the Ear, Jefferson Medical College; ARTHUR A. STEVENS, M.D., Instructor in Physiological Diagnosis, University of Pennsylvania; H. R. WHARTON, M.D., Demonstrator of Surgery and Surgeon to the Hospital, University of Pennsylvania.

In the Abstract department, which has been limited to a summary of certain of the papers appearing in French and German periodicals, the most radical changes will be made. We shall present in each number a complete digest of the previous month's medical literature of the world upon gynecology, obstetrics, and pediatrics. No pains or expense will be spared in order that this portion of the JOURNAL shall contain a complete résumé of the latest researches in the branches to which it is devoted.

THE EDITOR.

TRANSACTIONS OF THE SECTION ON
GYNECOLOGY, COLLEGE OF PHYSICIANS
OF PHILADELPHIA.

Meeting of October 17th, 1895.

The President, C. B. PENROSE, M.D., in the Chair.

DR. B. C. HIRST read a paper upon

A REMARKABLE CASE OF ACQUIRED ATRESIA OF THE VAGINA.¹

DR. LAINÉ.—I saw the patient out in the country two years ago, just as I was about to sail for Europe. I sent her to a gynecologist in Philadelphia and understood that he was going to do a hysterectomy. I did not see the woman again until after my return from Europe, and found a large mass in the pelvis. For several days I was undecided as to what it was, because I had understood that the doctor had performed hysterectomy. However, I went to see him, and he told me he had simply removed the ovaries. I then sent the patient to Dr. Martin, who opened the collection in the upper part of the vagina, and this was followed by a urinary fistula. Two or three weeks after this operation she developed very high temperature and the diagnosis rested between an ascending pyelitis and a collection of pus in the upper part of the vagina. Dr. Martin requested me, during his temporary absence, to operate on the case. I did so through the rectum, and drained a collection of pus in the upper part of the vagina. The temperature at once dropped to normal, and two months afterward Dr. Hirst did a hysterectomy on the case. The mistake was that, after developing complete atresia of the vagina, a hysterectomy was not performed instead of simple oöphorectomy. For after this, even if she had not menstruated, the mucous discharge from the uterus would have been sufficient to cause the swelling or abscess in the upper part of the vagina.

DR. NOBLE.—It would seem that this patient's ovaries were not removed, so that we can hardly speak of removal of the ovaries when there was enough of one ovary left to insure menstruation. I would like to ask whether Dr. Hirst removed the vagina in his operation.

DR. HIRST.—I did not, for it was probably obliterated, except for a small segment in its upper third.

DR. NOBLE.—If this is the case I see no reason why she should not have some trouble from a shut-up vaginal retention cyst. It

¹ See original article, p. 902.

seems likely that some one will add to the series of operations by performing one for the collection of fluid in this unique case later on.

DR. R. H. HAMILL reported

A CASE OF ACQUIRED ATRESIA OF THE VAGINA.¹

DR. HIRST.—It would be useful to all of us to hear an expression of opinion, from the Fellows who possess experience in these cases, as to the advisability of opening the abdomen to see if there is a collection in the tubes. A case of my own, with a fatal result, well illustrates this. The woman had an acquired atresia of the cervix. This only developed when she was 47 or 48 years of age, and the symptoms so much resembled those of the menopause that they did not attract attention for a long time until great pain developed in urination and defecation. On examination I found a closed cervix and an enormous hematometra. I punctured and washed out the womb thoroughly and congratulated myself upon the probable complete recovery. A week later there was high fever with septic symptoms, evident abdominal and pelvic inflammation. On examination I detected enlarged tubes, which could not be reached when I tapped the womb because they were so high in the abdominal cavity. I opened her abdomen, but she died of septic peritonitis. Had I operated first upon the tubes and then evacuated the uterus the case would have had a successful issue. There was just enough communication between the tubes and uterine cavity to permit of infection of the former's contents. The uterine orifices of the tubes were not large enough to allow good drainage. The fluid leaked out drop by drop from the tubes into the uterine cavity—just fast enough to favor the spread of the germs of putrefaction to the collections in the tubes, but not enough to diminish the size of the large hematosalpinx that I found on both sides when the abdomen was opened. I shall make it a rule of practice in the future to open the abdomen in any case of atresia of the genital tract with hematocolpos or hematometra in which I am at all doubtful as to the condition of the tubes—that is to say, in the majority of cases, for all of us who have seen many of these cases know how difficult it is to determine the condition of the tubes by rectal examination before operation or by vaginal examination afterward.

DR. SHOEMAKER.—Owing to the difficulty of ascertaining prior to operation which organs are dilated to form the sac, I think that the wiser plan would be to drain from below all that it is possible to remove, and then by bimanual examination determine whether the tubes are emptied or not. The results of section afterward would be likely to be more satisfactory, since

¹ See original article, p. 900.

the complication of the enormous distention of the vagina or uterus would be removed.

DR. NOBLE.—As Dr. Hamill asks for an expression of opinion from each of us, I may say that it seems to me that the experience of all of us is rather restricted in this class of cases. They are very rare. So far as my own recollection goes, I think I have only seen one out of the many cases of pelvic disease which have come under my notice. That was a case due to an imperforate hymen. The case was sent to me as an ovarian tumor. A young girl of 17 or thereabouts had a sufficient accumulation of blood in the vagina, uterus, and tubes to make a lobulated tumor. It was very easy to make out three distinct tumors, one on each side and one in the centre. The hymen was excised and care was taken not to drag upon the uterus or tubes. By using asepsis the material drained away and she made a good recovery. I have not heard from her since she left the hospital in good condition, and I cannot give the ultimate outcome of the case, although I probably would have heard from her had the operation not given permanent relief.

I think the experience of others, however, in the past has shown that the majority of cases of hematometra and hematosalpinx do well when drainage is instituted from below. The old authors state that occasionally the tubes rupture when drained from below. It is more likely that they did not rupture unless dragged on, but simply that septic trouble developed from infection as in the case of Dr. Hirst.

It seems to me, however, the wiser plan is to drain from below as a first step. I am quite sure a smaller percentage will develop septic peritonitis when operated on from below than would do so if we did a major operation at the time. There certainly is great risk of sepsis in an operation to remove an enormous uterus containing menstrual blood, with enlarged tubes which would be present under these circumstances, when the diseased vagina must be left. I feel that the chances would be decidedly better by operating below and watching the cases, so that if bad symptoms developed a major operation could be done.

DR. PENROSE.—It seems to me the two plans of treatment should be adopted, one in case an accumulation of blood or fluid is contained altogether in the uterus, the other in case the vagina itself is distended with an accumulation. In the latter drainage from below would be the safer plan. In the former case I think that hysterectomy for the hematometra would be as easy as hysterectomy for any other condition.

The one case in which I had any experience was that of a woman with hematometra, who had also a hydrosalpinx fully as large as the uterus, crowning the fundus, firmly adherent to the uterus, pear-shaped. In this case I removed the appendages

and the uterus by abdominal incision and she made a very good recovery.

DR. JOHN B. SHOBER read a paper on

OPERATIONS FOR RETRODISPLACEMENT OF THE UTERUS.¹

DR. NOBLE.—This subject is such a large one that we might very profitably spend an evening on its discussion. There are various aspects to the paper, the first one being historical. I confess I was surprised at the historical references, more especially by the omissions. In the first place, in our own country there is no one who has done so much for this operation as Dr. Kelly. It is very well known that Dr. Kelly and Dr. Olshausen developed, although independently of each other, the operation of ventrofixation, hysterorrhaphy, or suspensio uteri. Credit should have been given to these gentlemen. Dr. Leopold's work is certainly much later than that of his fellow-countryman, Dr. Olshausen.

So much for that aspect of the question. So far as the term ventrofixation is concerned, for my own part I think it is a misnomer. It matters not whether the uterus is scarified or not scarified; it is only a question of a few months until the uterus is not fixed. Any one who has examined a case of ventrofixation a few months or weeks later has discovered this same ribbon-like band which Dr. Shober has attributed to the fact that the uterus is not scarified. I have been doing this operation without scarifying for at least five years. In my own operation the sutures which hold the uterus take part in closing the abdominal wall. I use a series of silkworm-gut sutures, beginning at the aponeurosis, which remain buried. A superficial row closes the skin. The point of not scarifying the uterus is an old one and has been shown in practice not to lead to any different results from those obtained by scarifying.

As to the point that abortions follow the operation, so far as my own experience is concerned, I have had only two patients to become pregnant after the operation was done. One was confined at full term, after some difficulty with the labor, under Dr. Norris. The other patient, when I last heard from her, was six months pregnant. Neither has aborted. There are numerous cases on record in which the patients have gone to full term after this operation, and very few cases in which abortions have been reported, and, as abortions occur in women who have not been operated upon, perhaps these cases were mere coincidences rather than illustrations of cause and effect. This objection to the operation is a relative one rather than an absolute one.

Another point in the paper was the use of ventrofixation, or hysterorrhaphy, in cases in which the uterine appendages were

¹ See original article, p. 843.

removed—an operation which all of us have done many times. During the past year, in cases in which it has been necessary to remove the appendages and when there was also an adherent, retroflexed uterus, I have adopted the method of removing the body of the uterus at the same time. Under these circumstances it adds little if anything to the risk of the operation. In this way we get rid of the corpus uteri at the same time that the appendages are removed, and by closing over the oozing surfaces, where adhesions have been separated, by the bladder peritoneum, very often can close the abdomen without drainage when otherwise a tube would be indicated. This is better than to fix the uterus after removing the appendages.

The next question is the proper method of treating cases of movable, retroverted uteri. My own opinion and practice has been, in a good number of these cases, that it is not necessary to operate at all. I have seen—all of us have seen—many cases of retroversion without any symptoms whatever. The uterus is small and there is no necessity to treat it at all. Where it is necessary to treat these cases a considerable number of them can be managed satisfactorily with a pessary. Where neither of these methods can be used I myself feel that the shortening of the round ligaments is the most desirable operation. My experience makes me favor this more and more, especially in young women who are likely to become pregnant. This operation certainly leaves the uterus in a better condition for gestation than does suspensio uteri.

The objection alleged by the author—namely, that the ligaments cannot always be found—is valid. Edebohls has shown that it is not always the operator's fault if the ligaments are not found. At the last meeting of the American Gynecological Society in Baltimore he reported two cases in which, failing to find the ligaments in the inguinal canal, he opened the abdomen and found that instead of going into the inguinal canals they ran into some other point; although I cannot remember exactly where he found them, at all events not inserted in their normal position. I remember the first operation of this character I attempted. I failed to find the ligaments, and I thought it was a very bad operation when I could not find what I was looking for. After having had that experience I went to see men operate who knew how. I have never since failed to find them. It is a very good operation, but, so far as risks are concerned, I think it is no safer than hysterorrhaphy. In a number of the cases in which I have done the operation I have opened the peritoneum on both sides. It is very hard not to open it, in some cases, when the round ligaments and the peritoneum are firmly attached. In these cases it is very easy to break through the peritoneum in stripping out the ligament, and in that way to open it. But we all know this is a very small matter, and in none of my cases have any bad effects followed. As to the

standpoint of avoiding opening the peritoneal cavity, I affirm that every man who shortens round ligaments will open in a certain percentage of cases.

Finally, the operation Dr. Shober speaks of is about forty years old—at least in its conception. The operation was invented by the late Dr. Sims. He went so far as to have instruments made and to have his patient prepared, when his courage failed him and he did not do it. The fear of the peritoneum was too great. Any one interested in looking up the literature will find that he broached the operation, went so far as to get ready to do it, and then backed out. So it is an old idea.

It seems to me the question of avoiding abdominal incision is a very small one. In the hysterorrhaphies I have seen, hernia has played no rôle, and, as that is the only real objection to opening the peritoneum in these cases, I do not see anything to be gained by the proposed procedure, to say nothing of the risk of wounding bowels.

The operation proposed is certainly a very ingenious one, but I do not think it adds to our practical ability to deal with these cases. It seems to me, also, though experience only will determine this, that there would be a considerable number of cases in which the ligatures would become infected from the uterine cavity and eventually work their way out.

DR. MONTGOMERY.—In going to the American Medical Association of 1894 I stopped at Kansas City and had the privilege of meeting Dr. Fritz Baum, who invented the needle which I show you, for use in the operation spoken of by Dr. Shober.

The instrument consists of two needles which are pushed out by a central piece. After the preparation of the uterus, as has been mentioned, the fundus of the uterus is pressed against the abdominal wall, when this is thrust through. He used a silk-worm-gut suture. The instrument was threaded, drawn back, and then, when thrust through the abdominal walls, carried with it the two ends of the ligature. These were removed from the eyes of the needles and the instrument withdrawn, leaving the suture in place. An incision was made over the abdomen between the two points, thus burying the suture as has been suggested by Dr. Shober.

At that time Dr. Fritz Baum had done two operations, and both of these, he said, had resulted very well. The only thing I feel about such an operation is that it is done in the dark; there is a possibility of intestine being caught or of penetrating the bladder in this method of procedure, and there is not sufficient advantage gained by the operation over making the abdominal incision for ordinary ventrofixation.

As regards the operation of ventrofixation in comparison with that for shortening the round ligaments, when we consider that the former requires but one incision, in the latter the peritoneum may be wounded in two places; that we are not always

certain in regard to the ligaments, whether they will be thin, slip easily in the groove, are adherent, easily broken, and the possibility of infection occurring; the ligament coming loose and slipping back—it is situated in a tract exceedingly difficult to treat otherwise than by the abdominal incision, and even then a very complicated condition—it seems to me preferable to do the operation of ventrofixation.

DR. BALDY.—Dr. Montgomery has covered thoroughly well the value of hysterorrhaphy over the Alexander-Adams operation. It is admitted that we are very apt to open the peritoneal cavity in many cases, and this objection against hysterorrhaphy in comparison with the Alexander-Adams operation must fall. There is no question that you cannot make your diagnosis sufficiently accurate to be certain, in the Alexander-Adams operation, as to the condition of the appendages. I question whether a correct diagnosis can be accurately made by any one as to whether adhesions exist. I have repeatedly had occasion to open the abdomen, thinking there was not an adhesion, and just as repeatedly have been disappointed. Though this statement may sound exaggerated to some, those accustomed to doing abdominal operations will recognize its truth. The man does not exist who can diagnose all cases which come into his hands with absolute certainty. If he does not diagnose correctly and does the Alexander-Adams operation, the result will be a failure. In my own work I have not the slightest possible use for the procedure.

There is a point as regards hysterorrhaphy to which Dr. Baer called my attention—that is, that hernias are liable to follow the operation of ventrofixation or suspensio uteri, whichever you choose to call it. The objection to hernia is an inherent one in all abdominal incisions. Dr. Baer tells me of a woman on whom I did ventrofixation, six months pregnant. She has an abdominal hernia. It flashes across my mind that this operation perhaps *does* predispose to this condition. The uterus is fixed at a certain point, and it will lose what movability it has as it grows in size. It will impinge on one point (the lower part of the incision) as it increases in size, and will, I believe, predispose to hernias. This is the first case of hernia following this operation which has come to my attention.

As to the operation proposed in which the ligature is passed so that it shall come out into the uterine cavity, I can imagine no more faulty procedure; it is almost absolutely certain that it will become infected. I cannot conceive where a ligature passing through a part of the uterine cavity itself must not have disastrous consequences so far as the patient is concerned. This procedure is to be avoided.

As to a band forming, the thin, narrow band being due to the non-scarification of the uterus, I can say that the idea is a mistaken one. I have very frequently been in the habit, and

mostly of late, of not scarifying, mostly because I forget to do so. I started out several times to do ventrofixation, got the sutures in and forgot to do scarification, and found that the cases do as well afterward as if scarification had been done. In one case, at least, in which scarification had been done, I found subsequently the same band as when scarification had not taken place. There is no radical difference. The suture going through the peritoneum of the uterus and the abdominal wall is certainly sufficient to cause irritation for adhesion. Observations made in a number of cases show this to be universally true.

The objection is made that the uterus is fixed and that the pelvic organ is made an abdominal organ. Primarily it *is* made an abdominal organ. Secondarily it goes back to its normal position and becomes a pelvic organ, and there is no more lifting of the uterus than before operation. The adhesion simply stretches out in a long thin band, and by that the uterus is secured so that it will not tilt over too much in any direction. The uterus is simply held suspended by a string. It may be stated as a fact that in examining the majority of these cases by vagina, if you did not know there had been ventrofixation you would not suspect adhesions. This again shows the difficulty of diagnosing abdominal adhesions. These cases do not abort. I know of half a dozen or ten who have gone on to full term. If they have gone six months safely they will probably go the rest of the way safely. The majority are delivered just as easily as if there had been no ventrofixation: in fact, two cases I have in mind had very difficult labors before operation, but, after ventrofixation, at their next pregnancies they had little trouble. This may be a mere coincidence, but at least it goes to show that the chances of pregnancy do not militate against the operation. I believe that is the experience of at any rate a large number of men who I know have had experience with this operation.

DR. SHOEMAKER.—There is a great difference in the method of doing the Alexander operation, which affects the decision as to its employment. For example, Dr. Edebohls, who has originated one of the best methods, slits up the entire inguinal canal on both sides, exposes the peritoneum, draws up each cornu of the uterus directly against the finger by means of the round ligament, then sews up the whole inguinal canal with buried silk-worm-gut sutures. Those who have seen him do this will appreciate that for a so-called simple procedure it is quite a formidable operation. The risk in that method is of double hernia instead of single hernia, while there is no less risk to life than in ventrofixation. However, there are occasions when shortening the round ligaments is called for, but, to judge from past experience since deciding to use either operation as indicated, I find I have done suspension of the uterus at least ten times where I have done the Alexander operation once. The

reason is that the Alexander operation seems to be only indicated in those cases of retroversion *without much descent* where you do not get enough support from the perineal restoration, and where you have uterus, tubes, and ovaries absolutely free from adhesions. Cases of that description which call for any operation at all are not very abundant to my mind. It is the ovarian prolapse accompanying the retroversion which causes many of the symptoms. One needs the help of a hand in the abdomen to detect minor adhesions, which must be freed, especially from the ovaries, to make a good result.

DR. RICHARD C. NORRIS.—I have just entered the room and therefore have not heard the paper which has been read. Bear-



Pregnancy following ventrofixation. Labor obstructed by fixation and hypertrophy of the anterior uterine wall. A, position of buried silkworm-gut sutures; B, anterior lip of cervix; C, posterior lip of cervix.

ing upon the subject being discussed, I wish to report to the Society a very interesting and complicated labor due to a ventrofixation. This patient had been operated on by Dr. Noble and came to the Preston Retreat for her confinement. After several hours of ineffectual labor pains I examined the patient and was surprised to find what at first appeared to be a uterine fibroid resting above the symphysis pubis and seriously obstructing the pelvic inlet. The true character of the tumor was made apparent when I recognized that it alternately hardened and relaxed with each recurring uterine contraction. The buried silkworm-gut stitches of the ventrofixation were plainly felt through the abdominal wall at the upper margin of the

mass of hypertrophied muscle. It was apparent that the anterior uterine wall, fixed at the fundus by the suture, had practically been folded on itself during its physiological hypertrophy throughout pregnancy, and now formed a tumor obstructing delivery. No presenting part was felt through the cervix. The patient was etherized and a careful examination was then made. The posterior uterine wall, which formed almost the entire uterine sac, was so thinned that the intestines, containing fecal masses, could readily be felt by the hand in the uterus. Realizing the imminent danger of rupturing the uterus, the position of the child was carefully determined. Its head was high on the left, occupying the region of the mother's spleen. The child's breech lay in a depression between the upper margin of the mass of muscle and the upper anterior uterine wall. The feet and legs were in contact with the anterior uterine wall.

It was absolutely impossible, without violence, to carry my hand around the obstruction and grasp a foot, or to dislodge the breech from the depression in which it was resting. Realizing the danger of rupturing the uterus, cephalic version was cautiously performed and the head was crowded between the sacral promontory and the obstructing mass of muscle. A very high application of Tarnier's forceps enabled me to deliver the child, when I discovered that the umbilical cord had been compressed between the child's head and the mass of muscle above the symphysis. The infant, in consequence of this accident, perished. The patient's puerperium was normal. The uterus involuted properly and remained fixed to the anterior abdominal wall by the silkworm-gut sutures. The patient suffered from a diastasis of the recti muscles, that formed a large hernia extending into the line of the abdominal incision, and she is now wearing an abdominal binder. While this case is not unique, a few others having been recorded, in some of which rupture of the uterus has occurred, it is important that such cases be recorded and that the possibility of a complicated labor should be borne in mind as a remote danger of ventrofixation secured by buried, non-absorbable sutures.

The accompanying figure illustrates the obstruction occasioned by the imprisoned and hypertrophied anterior uterine wall.

DR. DAVIS.—In cases where the uterus remains firmly attached to the anterior abdominal wall, abnormal thinning of the opposite wall can scarcely be avoided as pregnancy progresses. Recent obstetric literature includes the report of a case where rupture of the uterus occurred during labor. In the shape and contour of the uterus the case resembled that described by Dr. Norris. In performing the operation of suspension of the uterus it is well to leave, if possible, no sutures. In operating a year ago upon an obstinate case I passed double silkworm-gut sutures through the abdominal wall and uterus, and brought

them up upon each side, and fastened them with lead plates and shot without tying them. The abdominal wall was brought into apposition, but not as closely as when sutures are tied. This patient has been relieved of her disability, the scar over the uterus being a little broader than where the incision is closed by tying the sutures. The uterus is freely movable and does not lie against the symphysis nor in Douglas' cul-de-sac. In view of possible pregnancy it is well, in operating, to leave the womb in as freely movable a position as possible.

DR. B. F. BAER.—The case of hernia which Dr. Baldy has just referred to is the only one that I have seen following ventrofixation, but Dr. Norris reports another, operated on by Dr. Noble. In addition Dr. Norris states that the labor was complicated as a result of the fixation to the abdominal wall. Now, these are serious objections to ventrofixation; the same objections also apply to the Alexander operation. Both fix the uterus, and that is unnatural. As between the two I favor ventrofixation, because I always like to open the abdominal cavity when I have to deal with retroflexion of the uterus. The organ is often adherent and the appendages diseased even when they appear otherwise. Then I believe one short incision through the linea alba to be less objectionable than the two which are necessary for the Alexander. But neither of these operations is scientific, because both *fix* an organ which should be mobile.

The best operation for retroflexion, in my opinion, is a combination of the Wylie and Pryor methods—that is, shortening the round ligaments and then suturing the anterior surface of the uterus to the bladder. Of course this operation will not do if it is desired to compel the uterus to remain out of the pelvis or in an anteфлекed position; that, however, is not only unnecessary but is at times positively injurious. The uterus is a very mobile organ and easily maintains the normal position if the normal *condition* of the organ is restored.

DR. JOHN C. DA COSTA read a paper on

LARGE FIBROMA OF ANTERIOR VAGINAL WALL.

Tumors of the vagina are so rare that Dr. Arthur H. N. Lewers¹ states that Hart and Barbour say "that up to that time only thirty-seven cases are reported in the whole literature."

He was then reporting a case of fibroma of anterior vaginal wall² which measured one and one-half inches in antero-posterior measure and one and one-quarter inches in transverse measure.

Dr. Alfred H. McClintock³ in 1845 reported a large tumor

¹ Transactions of the Obstetrical Society of London, 1887-88.

² *Ibid.*, vol. xxix., p. 299.

³ The Medical Times, London, vol. xiii., p. 473.

of anterior wall which measured five inches in circumference. He ligated it with fishing line around base. It took four weeks altogether to remove it. There was slough and hemorrhage, and a small part of the urethra sliced off by the ligature.

Mr. Paget,¹ of London, reported in 1861 that he removed a tumor "as large as a hen's egg from the anterior right wall." The tumor was shelled out. Recovery.

Dr. Meadows,² of London, in 1868-69 removed one as large as a turkey's egg. He used an *écraseur*. The patient died a few days after.

Dr. J. C. Moore,³ of St. Louis, Mo., took out one in 1885 as



FIG. 1.—Fibroma of anterior wall of vagina. A, sound in urethra; B, erosion due to friction.

large as a California pear. He dissected it out and packed with carbolized gauze.

Dr. Horatio R. Storer,⁴ of Newport, R. I., in 1886 removed a large tumor of the vagina—probably the largest heretofore recorded—with *écraseur*, and then by stretching the anus and pushing it out.

¹ Medical Times and Gazette, London, 1861, vol. ii., p. 161.

² Transactions of the Obstetrical Society of London, 1868-9, vol. x., pp. 141-143.

³ St. Louis Medical and Surgical Journal, 1885, vol. xlviii., pp. 125-127.

⁴ Virginia Medical Monthly, 1886-87, vol. xiii., pp. 793-797.

Prof. A. R. Simpson¹ in 1887 or 1888 took out a tumor "as large as two fists" "rooted along the entire anterior vaginal wall, upper two-thirds of urethra, and part of trigone of bladder, to an extent in all of about five inches."

The patient upon whom I operated was a Pole, æt. 40, who came into the Jefferson Medical College Hospital with a large tumor separating and projecting beyond the labia. A short examination showed that it started just in front of the cervix on the anterior wall of the vagina; that it extended along the whole anterior wall to and even beyond the end of the urethra, and part of the way down on each side of the vagina.



After operation.

It was dense, and yet in places elastic, feeling something like a thick-walled cyst, but on incision was found to be a fibroma.

The measurements of tumor before operation were: antero-posterior measure, six and one-half inches; transverse measure, four inches.

It was quickly shelled out with knife and fingers. Only one artery needed to be tied. The large flaps that were left were cut off with scissors, the bed scraped with a sharp curette, and the incision closed just as in the operation for cystocele.

There were no symptoms after operation. In eleven days the stitches were taken out. There was perfect union from end to end, and a few days after the patient went back to the coal regions, well.

¹ Transactions of the Obstetrical Society of London, 1887-88, vol. v., pp. 121-124.

The two photographs show well the condition before and after operation.

The black sound placed in the urethra shows its direction and how the tumor extended even beyond its opening.

The dark spot on the tumor is the erosion caused by friction.

DR. DA COSTA presented also a paper on

THE WORK OF THREE SUMMER MONTHS.

As an evidence that the summer work is not entirely devoid of interest, I report to the Section a brief sketch of three months' work during the dull season this summer.

The cases are not as many as some of the Fellows may have had, but a few of them are of special interest, showing, as they do, very serious conditions, without the ordinary symptoms by which we diagnosticate disease, and some indeed with symptoms that would rather lead one astray.

The number of operations was seventy-eight, or an average of one for each week day. They comprised among them the large fibroma of the vagina, report of which has just been read; twenty-three celiotomies, and fifty-four other operations for various diseases, as follows:

Cervix, amputations of.....	7
Celiotomies.....	23
Curettement for various disorders, as endometritis, metrorrhagia, menorrhagia, results of abortion, etc	21
Fissure of anus.....	1
Fibroma of anterior vaginal wall.....	1
Cystocele	3
Hematoma of labium.....	1
Perineorrhaphy.....	9
Polyphi (large) of uterus.....	4
Pelvic hematocele (opened through vagina)	1
Sessile tumor of the urethra.....	1
Trachelorrhaphy.....	6
Total.....	78

Among the celiotomies were the following singular cases:

E. S., æt. 46. Menopause in June, 1894, after which she had considerable paroxysmal pain in the right inguinal region, which lasted until November, 1894, when she noticed a lump in the right groin. When she presented herself six months after she was free from all pain except a constant one immediately below the liver. A large mass (movable) could be felt on the right side, and the diagnosis was made of a cyst of the right ovary. As she was excessively fat she was kept under treatment for about three weeks, to reduce her; and during all the time temperature was normal, and no symptoms noted except the pain under the liver. The abdomen was opened (belly wall three and one-half inches thick), and an abscess of the right ovary, as large as a child's head, removed. As adhesions were many, a glass drain was used for two days.

Recovery was uneventful, and the liver pain disappeared after operation. The symptoms here gave no indication of the real trouble.

A. D., æt. 28. This patient was brought into the hospital with the statement (afterward found to be false) that she had been freely purged that morning.

Her only symptoms were constipation, nausea, and vomiting of a little bile and of the food taken into the stomach. There was no fecal matter in the vomit. Pain in the *left* groin, but none on the right side. Temperature before the operation did not go above 99°, and ran generally a little below 98½°.

The abdomen was somewhat distended, being more so on the right side than on the left; somewhat tympanitic, but not tender.

Within three days of seeing her she was operated on, and she proved to be the worst case of "general suppurative peritonitis" I have ever seen. When the abdomen was opened pus gushed out, followed by the colon, which burst open from its own rottenness. Everything was adherent and matted together. As the adhesions were broken up the woman passed flatus while on the table; and after handfuls (literally) of pus and great pieces of lymph were taken out, the cause of the trouble was found in the appendix, which had a slit three-quarters of an inch long in it. The slit in the colon was sewed up, the abdomen washed out, and the wound closed. She did very well for two days, and had two bowel movements of solid, formed stools the day after the operation. Some sixty hours after the operation she became slightly delirious, sank quickly, and died within twenty-four hours.

Here was a very grave case without the symptoms to guide us.

J. B., æt. 22. This patient presented herself with a history of dysmenorrhea. Examination showed endometritis, with slightly enlarged tubes and ovaries, and a lump as large as a walnut in the middle line of the abdomen about two inches above the pubis. She was extremely thin and the contents of the pelvis and abdomen could be very clearly outlined. She was curetted preparatory to a celiotomy to be done a week later.

Three days after curetting she complained of pain in the right side and her temperature shot up from normal to 101°. The next day, as it kept up, I examined her and found a large mass on the right side. She was opened within two days, and, after a large amount of black blood had been removed, the cause was found to be in the right tube with a slit half an inch long in it. The operation and the microscope showed ectopic gestation, and the hard lump in the middle line was an alveolar sarcoma of the omentum.

Here was a case of tubal pregnancy, rupturing before our eyes, without the symptoms we are taught to expect but generally do not find.

E. S., æt. 44. This case is remarkable only for the number of turns of the pedicle. The woman, except for the discomfort of the tumor, was well until ten days before operation, when intense pain set in and lasted.

The operation showed a cyst of the right ovary about as large as a seven months' pregnancy. The pedicle was long, with three and one-half full twists in it. Adhesions were universal. The intestines, where adherent, were much discolored and almost gangrenous. A piece of the omentum as large as the palm of the hand, where it was adherent, was gangrenous, and the cyst also was gangrenous under it.

These adhesions, as well as the twists in the pedicle, must have occurred within the ten days preceding the operation during which the pain was felt.

DR. E. E. MONTGOMERY read a paper on

THE VAGINAL ROUTE IN THE TREATMENT OF PELVIC INFLAMMATIONS.¹

DR. BALDY.—It seems to me a paper of this kind ought not to be allowed to go out of this Section without a discussion. The more I listen to papers on this subject the more I am convinced that it is faulty surgery. The vaginal hysterectomy cannot be compared with abdominal hysterectomy. Everything is against vaginal hysterectomy, barring hernia. I think the abdominal hysterectomists are not much afraid of hernias; the percentage is very small. With that one disadvantage there are to be compared the disadvantages of the vaginal operation—that is, the fistulæ of the bladder and bowel fistulæ. There is not a prominent operator who has done a large number in which there has not been a large number of vaginal fistulæ. There were ten in Jacobs' series, there were ten or twelve in Ségond's. Ségond has some ten, twelve, or fourteen bowel fistulæ, some incurable, some bladder fistulæ incurable. Jacobs had to remove the kidney for severed ureter. I do not know a single abdominal operator who has one of these accidents. I speak only of the men who are worthy of being compared with the able operators on the other side. You have on one hand the hernia, on the other the miserable, incurable fistulæ against the vaginal operation. There were several other points Dr. Montgomery brought out. He says by the vaginal route the tubes and ovaries or uterus are removed without breaking up the adhesions and opening the general peritoneal cavity—statements which are utterly without foundation in fact. If you remove these organs in pelvic inflammations, without exception you will open the abdominal cavity; you cannot remove the appendages and not open the abdominal cavity. This statement of the vaginal hysterectomist is a pure myth, and I do not believe the gentlemen who do the operation believe it themselves. Then they say a shorter con-

¹ See original article, p. 854.

valescence. Who wants to take a patient who is sick enough and has disease enough in her pelvis to demand a hysterectomy of any kind, and allow the patient on the sixth or seventh day to leave the bed? I cannot conceive of anything of more disadvantage to the patient. I consider the three weeks, six weeks, or two months that the patient has in bed is invaluable for her future health. They claim a better convalescence and a quicker. What do they mean? They mean they get their patient out of bed. I had one of these patients in the Gynceean Hospital, done by Jacobs, and she stunk so badly at the end of two weeks and a half that I was glad to have her leave the house. She was, I consider, a sick woman when she left, and needed careful medical treatment; but she would go, and I was glad of it. No wonder they recommend douching after three or four days for three or four weeks. It is absolutely necessary. However, I do not call such patients well, even if they do. This precaution as to continued douching is not surprising when you recollect that piece after piece of tissue is clamped and deprived of all vitality; and this tissue must come away, it is absolutely killed—there is no other way to dispose of it.

All the disadvantages are against vaginal hysterectomy, and so many advantages in favor of the abdominal that I do not see how there can be any question. There is no operation in abdominal surgery so neat, clean, and practical; not an atom of disease is left; the ovaries, the Fallopian tubes, and the uterus—there is no chance that you shall leave a particle. Even double oöphorectomy frequently leaves small pieces of tubes or ovaries; they frequently leave the broad ligaments so denuded and infiltrated with disease as to leave a dirty, filthy pelvis. No wonder the gentlemen who refuse hysterectomy are draining ninety-five per cent of their cases. So we would if we allowed the same amount of diseased stuff to remain in the pelvis.

In vaginal hysterectomy, if you don't hug the cervix, off goes the ureter. In abdominal hysterectomy you are working under the ureter, most of the time having pushed it to one side, and there is not the slightest danger of touching it. You can dispose of the parts under the eye with absolute certainty, and you know that you have not injured a part which must eventually slough off. If you put the two operations side by side; if you see the gentlemen who do vaginal hysterectomy using as much force as a blacksmith, and then see the case with which a pelvis can be cleaned out by the abdominal method, there can be but one impression left. It is not necessary to work in the dark to get these appendages out with inflammatory adhesions. I say put the operators side by side, and I confidently rest my case in rational men's minds.

Dr. NOBLE.—This question is, of course, the one which is now engaging us all, as to whether we will make use of the proposed vaginal method of dealing with pelvic troubles. There is so

much that is good in the abdominal method, and so much, in my own hands, that is unsatisfactory in vaginal work, that for the average case I prefer the abdominal route. It rests with the advocates of vaginal hysterectomy to show that the vaginal method gives better results both as to morbidity and mortality. So far I do not think they have shown that it is preferable. I agree entirely with Dr. Baldy as to the question of opening the peritoneal cavity when vaginal hysterectomy is done. When the uterus is removed I believe in every case, without exception, the general peritoneal cavity is opened. In all my experience in abdominal surgery I do not recall more than a few cases in which the omentum and bowels were plastered over the uterus so that you could not see or feel that organ from the peritoneal cavity. In other words, it is very rare; for whether the uterus is removed from below or above, you have to open into the general peritoneal cavity. Except in the very worst cases, if the tubes are removed, certainly if not on one side at least on the other, the peritoneal cavity will be opened and you have a second opening into the cavity of the peritoneum. This argument of not disturbing barriers is fallacious; it has no groundwork in fact. There is no doubt that a certain number of adhesions are left, but when once the "barrier" is broken through then it is no longer a protection; what remains behind simply cripples the bowels, and therefore the "barrier" had better be completely broken up rather than one-third or one-half broken up. I think, also, it is a very strong argument against the vaginal work that the gentlemen themselves admit that they cannot get out all the tubes and ovaries; they leave a piece of uterine tubes at times, they leave one ovary in or pieces of tubes or the whole tube. I am loath to admit the statement that diseased tubes can be left in and the woman be well in the future. I could not conceive that such a woman is going to remain well, and, unless experience shows that the claim made is true, I expect to see these women having recurrent attacks of peritonitis just as they have had before. I think this is a very strong argument against the vaginal method.

All well trained in abdominal work have had the same experience as myself, that it is almost always possible to complete the operation from above. Leaving out diffuse cancer cases and confining ourselves to inflammatory cases, I only remember one case in which I failed to "clean out" the pelvis. I do not mean to say that all these cases cleaned out got well, but still the diseased structures were removed. This is admittedly impossible from below.

The question comes as to the proper field of the vaginal operation. I am not disposed to say that there is no field for it. I think it is an extreme position and that the good men who are operating in it will demonstrate its legitimate position, and after a time that it will have its proper field, but my judgment is that

it will be a small one. It seems to me that there is a proper field for a vaginal operation in the bad cases of pelvic suppuration, but not in hysterectomy. I have removed the diseased structures in these cases, and, like others, have seen a number of them die. I have made up my mind that I will drain such cases (by opening the pus pockets without hysterectomy) from the vagina until they rally from their septic condition, and then remove the diseased structures if necessary. In that way you do preserve the "barrier." I think this method is a very much more valuable addition to our technique than is vaginal hysterectomy.

In reference to cancer cases my experience is that vaginal operations for cancer are not very satisfactory. We all know that in operating our anxiety not to wound the ureter inevitably makes us hug the cervix; in that way we defeat our aim. In the *Johns Hopkins Hospital Bulletin* of a recent issue Dr. Clark has proposed a method which I think a distinct advance—that is, to introduce bougies into the ureters so that they can be palpated with ease; ligate the upper portion of the broad ligament close to the pelvic wall, including the round ligament and ovarian artery; open the two layers of the broad ligament, and dissect the uterine artery out to its origin and ligate it before it gives off its vaginal branch; then cut away not only the uterus but the entire broad ligament, and, if necessary, more or less of the vagina. By having the bougie in the ureter it is possible to place the ligatures close to the pelvic wall and yet to avoid the ureter. The vesical and rectal peritoneum can be sutured, which leaves the pelvis clean, and there will be no necessity for drainage. This is a distinct advance in operating for cancer of the uterus. I think this method will greatly lessen the percentage of recurrences in these cases.

DR. B. F. BAER.—I am not in favor of vaginal hysterectomy in pelvic inflammatory diseases, because I do not believe it is necessary to remove the uterus in five per cent of these cases, even including the pus cases. The operation is not conservative. I have not yet been able to bring myself to subscribe to the doctrine that if the appendages are removed the uterus necessarily becomes a useless organ and therefore should be also sacrificed. It is true that some cases require after-treatment for a remaining endometritis, but this has been the exception in my practice rather than the rule. And there have not been a half-dozen instances in the hundreds of cases of ovariectomy that I have performed in which it has been deemed necessary to remove the uterus afterward. Now, if a cure can be effected and the uterus preserved, it seems to me that it is unsurgical to remove it. There are both anatomical and physiological reasons why the uterus should be preserved; and even when it does become necessary to remove the organ—for fibroid tumor or chronic hypertrophy, for instance—I believe it is then wise to do the next best thing and preserve the cervix. My

reasons for preserving the cervix have been frequently stated, so that it is not necessary to repeat them here; but I wish to express my continued belief in the soundness of the practice—a belief which is based upon a large experience and a close observation of the after-history of the patients. To preserve the cervix it is of course necessary to operate by the abdominal route.

Another objection to the vaginal route is the necessity of treating the wound as an open one because of the incompleteness of the operation. This prolongs the convalescence, increases the suffering of the patient and the care and trouble to physician and nurse, and, worse, the subsequent history of many of these cases will be the same as when incomplete operation is done from above. The patient will not be cured. Now, by the abdominal route drainage is seldom necessary, for the operation can be rendered clean and complete even where adhesions and suppuration are extensive, and the enucleation can be made with safety to the intestinal continuity; whereas in operation from below such dissection almost necessarily results in injury to the bowel, because the work must be done in the dark. I have been able to close the incision without drainage in ninety-eight per cent of the cases during the last five or six years, and my mortality has been almost *nil*. Remember, I am now speaking of the pus and inflammatory cases. I do not wish to appear dogmatic, but I do wish to emphasize my position regarding drainage. With a small incision and the exercise of care in the separation of adhesions, it is exceedingly seldom that I am unable to make a complete dissection of the diseased structures from their attachments, leaving the pelvis clean and free from unhealthy tissues. Under these circumstances the incision may be safely closed, with an assurance of a short and easy convalescence.

There has been a great “tidal wave” during the past year toward the vaginal route, and I have the greatest respect for the gentlemen who have been working in this direction; but as long as my results continue as good as they have been I can see no reason why I should change my practice. I would regard it as a step backward.

PROF. BALDWIN (guest).—The matter that is now being discussed was brought up and was the subject of a very interesting discussion at a meeting of the American Association of Obstetricians and Gynecologists in Chicago. The general tenor of remarks was similar to those made by the gentlemen to-night, but we had an invited guest present at the meeting, a young man named Dunn, in Chicago. He had spent ten years in following the work of just these men abroad who had been doing this vaginal work. He went there biassed strongly against that method of reaching these pelvic troubles. He had been brought up to attack them from above. He followed the work of these men

until he became a thorough convert and, like most proselytes, a very strong advocate of that method of procedure. He was, fortunately, quite expert with the crayons, and he put upon the blackboard a diagram showing the method of procedure, throwing a good deal of light on the method adopted by these men. He had ample time, and was the target of questions for at least two hours. He sustained himself remarkably well, and while he did not, perhaps, make very many converts, he made a very pleasing presentation of that question.

He was followed by Henrotin, who went abroad biassed against this treatment, but came back thoroughly converted. Here were two men converted. I have been a "Doubting Thomas," and I am not sure as to the propriety of attacking a bad case through the vagina. Of course we have to attack abscesses. I saw Dr. Montgomery operate this morning. He said it was the most difficult case he had had. It required much perseverance and muscular strength on his part to complete the operation, but he completed it, and I thought very satisfactorily. I did not have my fingers in the pelvis, but I do not think there was very much left but his forceps. I shall wait with interest to get the result of the operation of this morning.

I have for several years been in the habit, in these bad cases such as this operation is especially recommended for, of attacking them primarily above, and, if I thought I was getting into dangerous ground—of course having the vagina thoroughly disinfected—of opening from below, so that I could work with my fingers in the vagina and from above, opening the abscesses. In so operating I would rupture from above, wash them out, peel them, then drain through the vagina, and I have had extremely satisfactory results when thus treating.

DR. BALDY.—I would like to call attention to just one point in regard to the value of these operations, taking the illustration of the gentleman in Chicago before the meeting of the Obstetricians and Gynecologists, who had been ten years in Europe studying these questions and gone over to the other side. I think they could not have understood correctly. It was only two years ago that I proposed this operation, and he has never had a chance to compare it, sir; and I contend that most of these gentlemen know nothing of the upper method whatever. Dr. Jacobs and Dr. Pozzi, who have been in this country, have both modified their views after seeing the abdominal hysterectomy properly performed. The gentleman who has been away ten years does not comprehend the question—in fact, knows nothing of it and cannot possibly make any comparisons of value.

DR. MONTGOMERY.—I have not come to the discussion of this subject without some experience in the treatment of pelvic troubles by the abdominal way. In the consideration of the subject I am endeavoring to look upon every improvement or

change in the light of whether it is good or bad, whether it is for the interest of the patient, and I do not believe that we can always determine these until we have tried the procedure. The chief advantage of the vaginal procedure is that it affords an opportunity to explore the condition of the pelvis and often to save organs which would be sacrificed by the abdominal plan. We well know if we open an abscess we would take that organ out rather than leave it to endanger the patient. By the vaginal procedure, opening the abscess and draining, we may subsequently have organs capable of performing their function, leaving the patient in a much better mental condition than in the abdominal operation.

A case now comes to my mind of a young lady, married two months, who shortly after marriage developed symptoms of quite severe character. She was examined by her family physician, who introduced a sound and curetted without any special aseptic precautions. The result was increase of the inflammatory trouble. She came under my observation some weeks later, suffering from high temperature and an evident abscess in the pelvis about to open into the rectum. This woman had inflammation on both sides. I felt if the abdomen was opened it would be necessary to extirpate both the uterine appendages. This was so repugnant to her that I made up my mind to see what could be accomplished through the vagina. Incision was made into the pus sac through the posterior cul-de-sac and right broad ligament. The cavity was emptied and irrigated. To make sure that I had opened the pus sac impinging on the bowel, I introduced my finger into the latter, when but little pressure ruptured the wall. The result was that we had an opening into the sac both through the rectum and the vagina. The latter, however, was packed with iodoform gauze and subsequently repacked two or three times. The patient recovered without any unfavorable symptoms and made a rapid convalescence, and under subsequent pelvic massage the uterus became movable, so that this patient is mentally more comfortable than she would have been had it been necessary to resort to the removal of the affected organs.

I have seen a number of cases in which a large abscess cavity has been opened through the vagina, packed, and drained, thus saving important organs. The patients have recovered and subsequently enjoyed as good health as if a thorough abdominal operation had been done, and certainly far better mentally.

With regard to the opening of the vagina and removal of the uterus, tubes, and ovaries, if the condition is such as to render the removal of both ovaries and tubes necessary, the uterus is subsequently of but little value. As to leaving the cervix, it is a mere matter of sentiment rather than any special advantage that it should be retained. When we come to the separation of adhesions it is true, as the gentlemen have said, that the uterus

cannot be removed, tubes, ovaries, and pus sacs enucleated, without more or less breaking-up of adhesions and opening into the peritoneal cavity. While this is true, the disturbance of the intestinal coils is not so great, and subsequent packing with gauze keeps them out of the pelvis and from contact with the raw surfaces; the calibre of the canal continues patulous, so that gas and fecal matter may have ready passage; while by the abdominal method it is not infrequent to find the formation of unfortunate adhesions and the death of the patient from obstruction. Then, again, turning down the uterus elongates the sac which has been previously emptied, and the separation is more readily effected from below than above.

As regards the convalescence, in the majority of cases in which I have performed the operation the patients have recovered more rapidly. I had one case recently in which there was infection; the patient has had high temperature, and convalescence has been slow, as we sometimes find in the abdominal procedure. In using the forceps we leave no infected sutures to give rise to subsequent annoyance.

DR. NOBLE.—Dr. Montgomery and the Society will be glad to hear the later history of the case he has reported in which an abscess was opened from the vagina and the rectum broken into. This patient is now under my care, and I may add that I am the third physician she has consulted since she left Dr. Montgomery's hands. This patient is now looking forward to an abdominal section in order to be relieved of a diseased right tube and ovary which probably contain pus. From her standpoint this vaginal operation was a nightmare. Of course the standpoint of the patient and that of the physician are very different. I myself have thought patients were doing perfectly well, but they have assured their friends that their experience was very bad indeed. She would like to banish the operation from her memory. The annoyance and suffering from the fecal fistula were severe, and she still has a diseased tube upon the right side and abdominal section is necessary to get her well. This is a typical example of what I have said concerning pus tubes which have been drained and not removed. Subsequently they will require removal in many cases.

In saying what I have concerning this case I would not be understood as condemning the operation performed by Dr. Montgomery. On the contrary, I think it was the proper thing to do under the circumstances. It saved the patient's life by giving her the chance to recover from her septic condition, and now, when in good general condition, the diseased appendage can be removed with very little risk to her life. Vaginal drainage, I repeat, is valuable in these septic pus cases, but it is valuable in ridding them over the crisis rather than in effecting a permanent cure.

DR. MONTGOMERY.—I am very much obliged to Dr. Noble for

giving me these further details of this case. I am always glad, in case a patient of mine passes into another's hands, to hear from the doctor. I am surprised about the fecal fistula, for the reason that the patient was under my observation for four weeks after the operation and no fecal or vaginal fistula existed. Of course the patient is a nervous, hysterical woman, and I shall be very glad to hear how she feels in regard to the abdominal operation after it has been performed.

DR. PENROSE exhibited the following specimens:



Epitheloma of vulva.

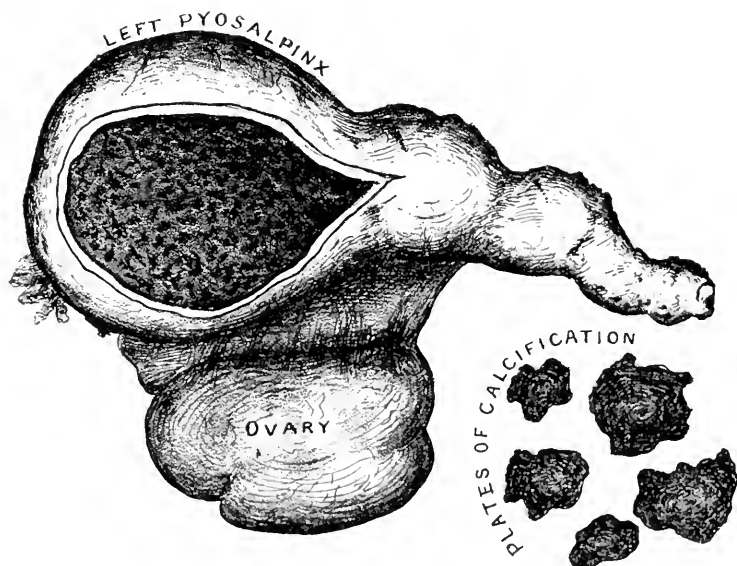
EPITHELIOMA OF THE VULVA.

J. B. W., 66 years of age, admitted to the University Hospital in June, 1895. Eighteen months before she noticed what seemed to be a furuncle on the right labium majus, which soon afterward broke and discharged a purulent material. It then became an ulcer. She went to a "cancer doctor" and was treated by blistering the part. The ulcer steadily increased in size, until on admission to the hospital it measured two and a half by three inches in diameter. A small portion of the ulcerating tissue was excised and subjected to microscopical examina-

tion, and proved to be typical epithelioma. There was no involvement of any of the lymphatic glands which could be examined. All the diseased tissue was easily removed, though it was necessary to carry the dissection to within one-quarter of an inch of the urethra and external meatus. Primary union took place, and the woman was in good health two months after operation. The ultimate result of the operation cannot, of course, be predicted. The case seems to be of sufficient interest to report on account of the rarity of the disease.

PLATES OF CALCIFICATION IN AN OLD TUBERCULAR PYOSALPINX.

A. S., 40 years of age, housewife, married, nullipara, no miscarriages. Menstruation first appeared in the thirteenth



year. She has had dysmenorrhea from the beginning, but until a year ago the flow occurred every four weeks and lasted for two days. For a year past the flow has been very irregular and has at times continued several weeks. Three and a half years ago, immediately after lifting a heavy weight, she was seized with violent pain in the right ovarian region. This was followed by profuse hemorrhage from the vagina, which continued seven weeks. Since this time she has not been well. She complains of pain in the left iliac fossa and back, headache, and almost continual hemorrhage from the vagina.

Vaginal Examination.—External genitals negative. Uterus small, virginal, fixed in the pelvis by old, very dense inflammatory adhesions. Both tubes enlarged.

Celiotomy May 17th, 1895. The omentum was found adherent to the abdominal parietes. The small and large intestines and rectum were attached to the left Fallopian tube by firm bands of adhesions. These adhesions were separated with very great difficulty, resulting in injury to the outer wall of the rectum and small intestine, which was repaired. Both tubes and ovaries were removed. A small amount of brown material having a fecal odor escaped from the left tube during operation. The pelvic cavity was washed out with a 1:2000 bichloride solution and closed. A glass drainage tube was introduced. Convalescence was uneventful.

Pathological Examination of Specimen.—The specimens consisted of the tube and ovary from both sides. *Macroscopical examination:* Left side: The tube measures 12 centimetres in length and from 0.5 centimetre in its proximal to 1.5 centimetres in diameter in its distal third. It becomes progressively larger as the fimbriated extremity is approached. The tube is covered with dense adhesions showing considerable laceration, and the abdominal ostium is closed. On section the muscular wall was seen very much hypertrophied, measuring 0.9 centimetre. The distal third of the tube lumen was very large and contained five plates of calcification, considerable semi-liquid calcareous material, and a muco-purulent fluid. The contents of the tube have the odor of feces. The mesosalpinx is obliterated, and the ovary, which is very small (2.5 by 2 by 1 centimetre), is in immediate relation with the tube. Except that the ovary was covered with adhesions, it showed nothing pathological. Right side: The right tube measures 10 centimetres in length and 0.5 to 0.9 centimetre in diameter. It is completely covered by adhesions which destroy the peritoneum and bind it to the ovary. The abdominal ostium is closed. On section the muscular wall was slightly hypertrophied, the lumen enlarged and containing a small amount of inspissated pus. The ovary measured 3 by 2.5 by 1 centimetres in diameter, was also covered with dense adhesions, and showed considerable sclerocystic degenerative oöphoritis. The plates removed from the left Fallopian tube were treated with dilute HCl, effervescence resulting, thus determining that they were due to calcification and not true bone formation. These specimens were those of long-standing tubercular pyosalpinx, perhaps in the transitional stage between pyosalpinx and hydrosalpinx. *Microscopical examination:* Up to the present time sections have only been made from the distal third of the left tube. They show all of the characteristic lesions of chronic fibroid tuberculosis. The tubercular disease is confined to the mucous membrane, which is almost completely destroyed. The muscular wall is very much hypertrophied and shows considerable small round-cell infiltration. The sections have not as yet been stained for the tubercle bacillus. These specimens therefore represent chronic unsuspected

bilateral fibroid tubercular pyosalpinx with calcification plates in the lumen of the left tube; chronic bilateral perisalpingitis and peri-oöphoritis; chronic sclero cystic degenerative oöphoritis of the right side, and chronic oöphoritis of the left side.

FIBROCYSTIC TUMOR OF THE UTERUS.

C. P., 49 years of age, housewife, married, nullipara, no miscarriage, married twenty-two years. Admitted to the University Hospital October 8th, 1895. Menstruation began in her sixteenth year and was generally regular, lasting four to five days. Eighteen years ago the flow became very painful, scanty, lasting two days, and the patient began to lose in flesh and strength. She was at this time treated for uterine disease, but without benefit, and the above symptoms and the gradual loss of health have continued to the present time. Seven years ago she noticed for the first time that a tumor was growing in the lower abdomen, but it gave her no trouble and was disregarded. The tumor steadily increased in size until it now fills the abdominal cavity. During the past year she has had attacks of cardiac oppression and palpitation. She complains of pain in the left iliac fossa, backache, and a sense of weight in the abdomen. Micturition is frequent. Bowels are regular. She has always been healthy, except as above, but has never been strong. Family history is negative. Urine is normal.

Vaginal Examination.—There was no vaginal cervix, the external os being flush with the vaginal vault. The os admits the tip of the index finger. Uterus is drawn up and its outlines obscured by the tumor.

A distinct sense of fluctuation was obtained by palpation of the abdomen, and the diagnosis of multilocular ovarian cyst was made.

Celiotomy October 11th, 1895. A cystic or edematous fibroid tumor filled the abdominal cavity to the diaphragm; it was tapped as a cyst, but without result. The entire fibroid mass and a mass of thin-walled cysts in the right broad ligament and the uterus, as far as the internal os, were removed. Hemorrhage from the site of cyst in right broad ligament was profuse. A Mikulicz drain was introduced and the abdomen closed with through-and-through sutures. Tumor weighed twenty-five pounds. The convalescence has been very easy.

SARCOMA OF THE OVARIAN LIGAMENT.

A. H., 31 years of age, housewife, married, Vpara, no miscarriage. Admitted to the University Hospital May, 1895. Menstruation began when 16 years of age, and has continued regular and normal. Eight years ago she fell and injured her left side. Since then she has complained of pain in this side, sometimes so severe as to confine her to bed. She now complains of

pain in the left hypochondriac region, extending up to the chest and into the right breast, backache, and a feeling of numbness in the left leg. About two and a half years ago, while carrying her fifth child, she noticed a tumor in her left side. The tumor continued after the birth of the child, and has increased continuously since then.

Examination.—The right lower abdomen was filled by the pregnant uterus. Upon the left side, in the region of the left ovary, was a round tumor, freely movable, stony hard, somewhat irregular in outline, about the size of a child's head.

Celiotomy May 31st. A hard tumor, the size of a fetal head, occupying the site of the left ovarian ligament, was removed. Seven ligatures were necessary to include the broad pedicle; the left ovarian artery was ligated at the pelvic wall to assist in controlling the hemorrhage. At the termination of the operation there was no hemorrhage and the abdomen was closed without drainage. The ovary and Fallopian tube were not in any way involved by the tumor. The woman died in four days of peritonitis.

Microscopical examination shows the specimen to be sarcoma. The tumor weighed five pounds.

ABSTRACT.

BOURCART, M.: TREATMENT OF AFFECTIONS OF THE UTERUS AND APPENDAGES BY RAPID MECHANICAL VIBRATIONS (*Annales de Gynecologie et d'Obstetrique*, June, 1895).—Liedbeck's success in producing resorption of infiltrations in cellular tissue by mechanical vibrations led Bourcart to apply this treatment to affections of the uterus and appendages. Liedbeck's is the only vibrator applicable to the uterus. The writer has employed this apparatus, but, owing to the irregularity of its motion, substitutes for the hand motor a small dynamo, which combined with Liedbeck's vibrator produces fifteen hundred to eighteen thousand vibrations per minute. The use of the electric motor permits the simultaneous employment of alternating currents if desired. The author's contact is a supple steel rod tipped by a solid rubber ball, vibration occurring in the rod and forming a node where the ball is situated, so that the latter receives and transmits vibrations without being displaced. The use of the vibrator does not exclude ordinary massage, which is a valuable adjunct, but its effects are much more rapid and durable, causing absorption of an exudate four or five times as quickly as simple massage. It should be cautiously employed, one to three minutes at first, increasing to five or ten; but is borne better than manual massage, very rapid vibrations causing local anesthesia. The

patient should be half-reclining, knees flexed; the physician on her left, holding the vibrator in his right hand while the left index finger in the vagina presents to it the parts to be treated.

Applications.—In subinvolution the uterus rapidly becomes normal in size, regains its tonicity, and relaxation of the ligaments disappears.

For adhesions this treatment is inferior to manual massage.

The vibrations applied to the displaced ovary cause diminution of pain and congestion and give tone to the ligaments.

In retrodeviation massage of the utero sacral ligaments, lumbar and sacral regions and sides of the pelvis, as well as of the uterus, is advisable.

In ante flexion it aids reposition by softening the uterus where applied at the point of flexion.

In metrorrhagia it must be of short duration, rapid, and with a soft contact, rapid vibrations causing at first contraction of the uterine muscles and blood vessels. The same continued cause muscular relaxation and relieve pain, so should be valuable in dysmenorrhea and amenorrhea.

In relaxations of elastic or diminution of muscle fibre, as prolapsus, cystocele, or rectocele, the vibrator is of great assistance. In prolapsus or descent of the uterus, after replacing the organ, direct vaginal vibration may be employed with the contact in either fornix as required. For this the contact may be like an air or water pessary with whalebone shaft. Massage is not a panacea, merely a valuable adjunct to surgical treatment.

For small uterine fibromata, very soft but rapid intra-uterine vibrations of a rigid rod with a supple, slender tip eventually diminish the size of the tumor by decreased nutrition due to uterine contraction.

H. D.

ITEM.

At the meeting of the AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS in Chicago the following were elected officers for the ensuing year: President, Dr. Joseph Price, of Philadelphia; Vice-Presidents, Drs. Albert Hawes Cordier, of Kansas City, and George Sherman Peck, of Youngstown, O.; Secretary, Dr. William Warren Potter, of Buffalo; Treasurer, Dr. Xavier Oswald Werder, of Pittsburg; Executive Council: Drs. Charles A. L. Reed, of Cincinnati; James F. W. Ross, of Toronto; Albert Vander Veer, of Albany; Lewis S. McMurtry, of Louisville; and J. Henry Carstens, of Detroit. Seventeen new Fellows were also elected. The ninth annual meeting was appointed to be held in Richmond, Va., Tuesday, Wednesday, and Thursday, September 15th, 16th, and 17th, 1896.

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